# The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 49. DECEMBER 5, 1936. Vol. 48.

## General Article

## VETERINARY RADIOLOGY*

Major G. E. OXSPRING, *O.B.E.*, F.R.C.V.S.
Royal Army Veterinary Corps

The progress of radiology in veterinary practice has been slow compared with that in human medicine, in which case the science has become an important specialism, giving incalculable aid to the diagnosis, prognosis and treatment of disease. Veterinary science may eventually benefit likewise from its universal application, but such progress is at present hindered by a shortage of veterinary radiologists. The failure of the veterinary profession to exploit such a valuable weapon against disease, while progressing so conspicuously in other branches, is remarkable. The explanation doubtless lies in the fact that veterinary radiology must be established by pioneer workers, at considerable expense, and carried on by those who have the opportunities of specialising in this subject.

During the last few years several veterinary surgeons in this country have interested themselves in the application of radiography to animal patients, and Continental colleges have established Roentgen institutes for the diagnosis and treatment of animal diseases, staffed by veterinary radiologists and technically trained personnel.

Radiology is essentially bound up with pathology, anatomy, and clinical science. The radiologist must possess a sound knowledge of these subjects in addition to being trained in X-ray physics, if the full value of veterinary radiology is to be attained.

The ultimate object of radiography is the accurate interpretation of the negatives, as an aid to clinical diagnosis. A radiograph can be made by a technician, provided he is given the requirements, but the interpretation must be made by an expert, if errors are to be avoided which may be disastrous and tend to bring the science into disrepute.

Radiology is without doubt a great aid to diagnosis and certain conditions can be recognised by its use, but it cannot be too strongly emphasised that it does not replace clinical observations, from which the final verdict must come.

*Presented to the Southern Counties Division, N.V.M.A., and the Aldershot Army Veterinary Association at a joint meeting held at Aldershot on September 29th, 1936.

In realising its many advantages we must never lose sight of the fact that radiology also has its limitations. Certain conditions cannot be diagnosed by X-rays, and also appearances are met with which may easily lead to errors with the inexperienced interpreter. It is a knowledge of X-ray physics which provides an explanation of many of those anomalies and incidentally goes far in avoiding mistakes.

The study of the radiographic appearances of the normal should always precede that of the abnormal. The cause of the various shadows on a negative must be estimated by considering the effect of the anatomical structures on an X-ray beam of a given quality passing through them. Some knowledge of X-ray physics and technique is essential to enable the radiologist to manipulate the apparatus with safety and success. Correct interpretation depends on exact technique and this requires variation to suit the particular parts examined under different conditions. The most reliable results are obtained when the radiologist is his own technician.

Space does not allow of X-ray physics being dealt with at length, and the reader is referred to the special manuals for further details on this subject.

A number of excellent portable X-ray sets are now on the market, which are quite suitable for small-animal radiography. For equine work this type of apparatus is usually unsatisfactory, and specially adapted apparatus is necessary to obtain reliable results.

The modern protected tube has undoubtedly minimised the risk of damage from X-rays, but certain precautions are necessary to ensure that the patient and operator do not suffer from the effects of over exposure. The erythema dose of X-rays varies in different individuals, but the fact remains that the quantity of X-rays increases with the duration of exposure, also with higher current and voltage applied to the tube. It decreases as the distance between the tube and skin increases, and as thicker filters are used. The effects of the X-rays are cumulative and evidence of injury may not develop until a considerable time after exposure.

The introduction of intensifying screens has shortened exposure times so that practically all radiographic work is now well within the margin of safety.

The danger from fluoroscopy is greater than from radiography because the former is very liable to be more protracted than the estimated

and safe time, subjecting the patient and operator to over exposure. Radiologists who are constantly employed on screening should take particular care to avoid unnecessarily exposing themselves to the X-rays. The specially prepared gloves and aprons should always be used in this work.

*Fluoroscopy*, or screening, is the method of examining a patient by throwing the image on to a screen which has been coated with a fluorescent substance, and protected on the observation side by a sheet of lead glass of suitable absorbing capacity, which prevents the X-rays reaching the operator.

In order to visualise the fine details of the shadows on a fluorescent screen, it is necessary to work in complete darkness. The operation may be carried out in a dark room, or by using one of the various types of hooded screens or fluoroscopes, of which Dessane's pattern is an example. The operator's eyes should be given time to get accustomed to the darkness before beginning a fluoroscopic examination. If this precaution is not observed the shadows on the screen cannot be properly seen, and the patient may be subjected to unnecessary exposure, apart from the probability of unsatisfactory results.

A voltage corresponding to 85 k.v. peak and a constant current of 3 to 5 milliamperes is necessary for fluoroscopic work. The tube must be capable of withstanding this high tension and have a fine focus with as small a diaphragm as possible.

The contrast of the image on the screen is controlled by the voltage and any variation of the current merely influences the general illumination.

If the necessary conditions for fluoroscopy are carefully observed it is possible to make rapid and accurate observations by this method. Its chief use is in connection with examinations of the internal organs and oesophagus and it is therefore practically confined to small-animal practice.

## RADIOGRAPHY

The appearance of an image on a radiograph is due to the fact that X-rays have the same effect on the light-sensitive emulsion as ordinary light has on a photographic plate. The conditions which determine the form the shadows take are very complex, and variations of any of these factors will alter the character of the shadows.

If the X-rays are applied directly on to a film, the result is a negative which is completely blackened. If, on the contrary, an object is placed in the path of the rays, they must traverse the object before impinging on the film.

During the progress of the X-rays through an object, some are absorbed and others are scattered in different directions and consequently do not reach the film; the remainder pass straight through. Materials vary in their absorbing or resisting capacity to X-rays—bone, for instance, obstructs their passage to a greater extent than muscle, and the latter more than fat. When the rays pass through a part of the animal body with various components of different densities, they reach the film in a corresponding concentration. The result is that white or light shadows appear opposite the denser parts, where much of the radiation has been absorbed, and dark shadows in other parts, where the rays have met with less resistance. The shadows on a radiograph, therefore, range from white to black and are distributed so that an accurate outline of the bones and some of the denser soft tissues is obtained.

The radiological appearance of the normal structures of a particular part must be familiar to the radiologist before appropriating to certain shadows a pathological significance.

Generally speaking, disease involving any particular structure has the effect of altering its chemical constitution, and consequently its degree of resistance to the passage of X-rays through it. Such changes are evident on a radiograph where abnormal structures cast lighter or darker shadows according to the type of change which has taken place.

The effect X-rays have on a film after traversing an object varies according to the quality of the X-ray beam and the time of exposure. When the tube is energised by a low voltage X-rays are produced which lack penetrating power and are called soft rays, a considerable proportion of which are absorbed by the tissues. The negative resulting from such conditions is "thin" and exhibits little or no detail. The application of a relatively higher voltage increases the penetrating power of the rays until they are able to pass through the denser parts.

The best results are obtained when the rays just penetrate the thicker portions sufficiently to give detail, whilst the remaining parts show darkening on the negative according to their respective densities. In this way contrast is obtained which is essential to a satisfactory radiograph.

Excessive penetration due to a very high voltage may result in the dense tissues being traversed by the rays to a degree which approaches that of the remainder. A radiograph produced under such conditions shows relatively less difference between the light and dark shades, lacks contrast and is "flat."

The length of time the X-rays are applied is spoken of as the exposure time. It is a measure of the amount of radiation of a particular quality, which acts on the film emulsion, and the greater this is the blacker will be the film. The correct exposure for various parts radio-

graphed, at certain tensions, must be arrived at by trial. This factor varies slightly in different individuals owing to the varying densities met with. For several reasons long exposures are objectionable and particularly so in animal patients where movement is difficult to control, and is likely to cause waste of time and material, apart from the danger of erroneous interpretations.

The disadvantage of most of the small portable X-ray sets is that they are limited to relatively low voltages, admittedly sufficient for small animals where the penetration requirements are simple, but inadequate for equines, where the tissues are thick and dense. In order to obtain radiographs in horses with such apparatus it is usually necessary to increase the exposure time very considerably. The general effect of such a procedure is to produce more or less satisfactory shadows of the very dense parts at the expense of the remainder, where detail is completely obliterated.

The use of intensifying screens, between which the film is placed, has greatly reduced exposure times. The screens are coated with a substance which becomes fluorescent when exposed to X-rays. The effect is to accentuate the action of the X-rays on the film emulsion and so reduce the time necessary for exposure. Intensifying screens are made to give the maximum amount of fluorescence and the minimum interference with the passage of radiation. If the surface of a screen is damaged it may cast a shadow which is capable of being interpreted as an abnormality. Screens should therefore be carefully handled and frequently examined.

The distance between the tube and the cassette is an important factor in the technique of radiography. An increase in the distance necessitates an increase in exposure time to secure the same radiation effect. This can easily be understood when it is realised that the X-rays travel out from the point of electron impact on the target within the tube in straight lines, forming a cone with an increasing base area as it recedes from the tube. A plate, therefore, receives more concentrated radiation in a given time when close to the source of the rays than when moved further away.

Within certain limits the sharpness of a radiograph increases with greater distance, but the question of distortion has also to be considered. Consequently each part has an optimum distance for making the best radiograph.

It has been explained that whilst traversing an object some of the X-rays are absorbed and some pass straight through. A further point arises in connection with the penetrating rays—some of them are deviated out of the straight line and strike the film at remote points, resulting in a fogged negative. This is called scattered radiation; the amount of this scatter is greater in the thicker objects and increases with the higher tube voltages. For this reason it is of more importance in equine than in small-animal radiology.

A great proportion of the scattered and secondary radiation can be eliminated by the intervention of a "grid" between the cassette and the part being radiographed. The grid consists of a large number of fine strips of lead, which are arranged so that minute spaces exist between them. The grid is placed at right-angles to the X-ray beam, immediately in front of the cassette. In this way only straight rays can pass through the spaces or reach the film, whilst scattered rays which mostly strike the grid at an angle are absorbed by the lead strips. The radiograph bears the impression of the grid and this is a disadvantage. The Lysholm grid now on the market is constructed in such a way that the grid lines are so remarkably fine that little interference with interpretation is noticed. The Potter-Bucky diaphragm is a device which eliminates scatter without leaving grid marks on the radiograph. It consists of a revolving grid on which the plates are placed radially to the X-ray beam. This grid is moved by a motor at a constant speed during the exposure and consequently no grid marks are apparent on the negative. Scattered radiation is absorbed by the lead plates, and as only the straight rays reach the film the resulting image is clear. The revolving type of grid is too cumbersome and delicate for use in equine radiology, in which the Lysholm grid has been found very satisfactory and less expensive. The use of a grid involves some loss of radiation from absorption and this must be allowed for by a slight increase in exposure time.

Movement of a part being radiographed will result in a blurred negative, which is usually not interpretable. It is often a difficult matter with animal patients to obtain immobility, even for a rapid exposure and requires patience and resourcefulness on the part of the operator. The animal should be made as comfortable as possible, for when in a constrained or painful posture movement is sure to take place.

In fracture cases in dogs it is always advisable to administer a narcotic before attempting to radiograph. The application of a twitch to equine subjects will often ensure immobility.

The factors of voltage, current, distance and exposure time have an ideal combination for each part radiographed and this must be ascertained by experiment. There is a slight variation in X-ray output in different tubes at equal tensions, and it is therefore necessary for the radiologist to develop his own technique according to the particular apparatus used.

X-ray tubes normally have a long life, but require handling with great care. They are

liable to burn out or puncture, especially if they are subjected to a tension which is too high for their particular capacity. The electrical factors applied must always be within the limits prescribed by the manufacturers.

For the reasons already mentioned it is not possible to give exact calibrations for the different apparatus best suited to the various parts radiographed. Electrical factors, exposure times and distances which have proved satisfactory are included in the description of each part and are intended as a working basis only.

Apparatus and technique of the highest order used for making radiographs can be rendered worthless by incorrect methods or carelessness in connection with the development of the films. The manufacturers of X-ray films usually issue instructions for the correct development of their particular products, and these should be strictly complied with.

In all cases there is a relationship between the time required for development and the temperature of the solution. A properly exposed film usually requires five minutes' development when the temperature of the solution is 65° F. and somewhat longer if it is cooler. It is advisable to work always at this temperature.

Development is purely a chemical process and there is therefore a definite limit to the number of films which can be developed in a given quantity of solution. It is true that slight loss of strength can be compensated by a proportionate increase in the developing time, but it is a dangerous form of economy to use the solution for too many films.

## GENERAL RADIOLOGY

In equine practice the use of X-rays is at present almost entirely confined to the limbs, the neck and certain parts of the head. This limitation, however, does not greatly lessen its value in the larger animals, because most of the radiological information sought is in connection with abnormalities of the limbs.

In the case of small animals radiology has a great scope and presents a wide field, much of which has yet to be investigated.

The X-ray characters of the common abnormalities of bones and joints differ only in degree in the various animals and a general description is given.

*Fractures.*—A fracture of bone may be shown on a radiograph as a dark shadow, which indicates the solution of continuity by the displacement of fragments of bone, or by an alteration in the shape. In the case of an incomplete fracture the shadow does not completely cross the bone. When the fracture is a compressed one there is actually more bone tissue rather than less at the fracture line, which therefore casts a white shadow instead of a dark one.

When a fracture is suspected radiographs should be made of at least two directions, because the fracture line may be evident in one where the rays pass through the separation, and absent in another where they cross the fracture and penetrate more bone.

Artefacts may give rise to shadows which resemble fractures. Some of the causes of these are: scratches on the films, splashes of chemicals on the film, air bubbles in the developing fluid, and damaged intensifying screens. Dark lines which cross the bones from such causes in most cases extend beyond the bone outline and appear to enter the soft tissues, in which case they are easily recognised.

When interpreting a fracture radiograph it is important to note if the fracture line involves a joint surface, because prognosis and treatment may be materially affected by such an observation.

Radiography may be resorted to some time after a fracture occurred, in which case the fracture line may be partially or completely obliterated by callus formation. This must be duly assessed during the interpretation.

It is often good practice to make a radiograph after a fracture has been reduced, to determine if the fragments are suitably set. This can be done without removing the splints and dressings provided they are not radio-opaque, and allowance made for the additional penetration required.

*Sequestra.*—Fragments of bone which have become isolated from the blood supply remain as foreign bodies until absorbed or removed surgically.

Radiologically a sequestrum retains its density, because it has no circulation to remove the calcium salts, whilst the surrounding bone becomes hyperaemic and consequently partly decalcified. This loss of density or atrophy is made evident on a negative by its relatively darker shadow compared with the sequestrum. The recognition of the latter is usually simple and often of considerable surgical importance.

*Dislocations.*—X-ray information in cases of dislocation is rarely required in horses, but is very common in small animal practice.

A dislocated joint may be very obvious radiographically, but it is a condition in which mistakes are easily made. A particular posture or direction of the X-ray beam may lead to a serious misinterpretation. A good knowledge of the radiographic normal of the particular joint will save many mistakes in this respect.

When a dislocation is suspected radiographs should be made of at least two directions. It is always advisable to make a radiograph of the same joint on the opposite limb or on a normal animal, in an identical posture, for purposes of comparison.

A radiograph of a dislocated joint, made soon after its occurrence, is usually clear, and the

damage to the torn ligaments is not apparent, owing to their ray transparency. If, however, the dislocation has existed some time, or the radiograph has been made some time after reduction, the joint usually appears to be hazy. This is due to calcium deposition in the damaged synovial membranes and ligaments.

*Arthritis.*—The X-ray appearances of this condition depend on the degree of the changes present in the components of the joint, such as articular cartilage, synovial membrane, synovial fluid and the extremities of the bones concerned.

Articular cartilage is transparent and therefore is not visible on a radiograph. Its presence or absence is judged by the width of the space between the bone surfaces which compose the joint, and the radiologist should be well acquainted with the extent of these spaces in normal articulations.

In acute arthritis the changes mainly consist of an increase of joint fluid, with some swelling of the synovial membranes and periarticular tissue. These characters are very indefinite on a radiograph and in many cases unrecognisable.

Nearly all cases of arthritis in animals sent for X-ray examination are of the arthritis deformans or chronic type. In such cases changes have usually occurred which are well indicated on a radiograph.

The articular cartilage may be absorbed or eroded resulting in a narrowed space between the bones, which may be completely obliterated in advanced cases.

The bone immediately below the articular cartilage may be decalcified, and consequently cast a darker shadow than normally. In long standing cases new bone may have been laid down in this area, causing a denser or lighter shadow than the surrounding bone. It is quite common for small bony processes to develop into the articular cartilage, and more particularly round the periphery of the joint surface, giving an appearance of "lipping" on a radiograph.

These bone changes are usually rather minute and can only be recognised on a negative when the detail is good.

When the synovial membranes are thickened from bursitis and the synovia also tends to become opaque from chemical changes, a radiograph results which is hazy over the joint. The appearance suggests an indifferent negative, but the bones outside the affected joint are quite clear.

The interosseous ligaments crossing a joint cast no shadows when normal, but there is a tendency for these to become calcified, particularly in old horses. This is indicated radiographically by light shadows more or less intense according to the extent of the calcification.

With a view to demonstrating the articular cartilages radiologically, Bohm, of Berlin, has recently conducted experiments with contrast medium injected into the joint cavity. The object is not to fill the joint, but to obtain a layer of the contrast agent over the cartilaginous surfaces and so cast a fine shadow outlining them on a radiograph. The agent used must be water soluble and must cause no irritation or damage to the joint. Uroselectan—B (Schering) was found by Bohm to be a satisfactory agent for this purpose in the human subject, and it has also been used in this country on animals with success.

The solution, moderately warm, is injected into the joint capsule, under aseptic precautions. The dose varies from a half to two c.c. in dogs, and two to four c.c. in horses, according to the size of the joint. After injection the joint should be freely moved 30 to 40 times in all normal directions. The radiograph must be made within ten minutes of injecting the contrast medium, as it soon tends to disappear.

A solution of sodium bromide is a contrast medium and has been tried for this purpose, but is liable to cause very acute joint pain, its use is therefore not to be recommended. The disadvantages of contrast technique for the X-ray of joints in veterinary radiology are (*a*) the danger of accidentally infecting the joint, (*b*) the high cost of the satisfactory contrast agents.

*Periostitis.*—In a radiograph of good contrast it is possible to recognise the normal periosteum as a thin dark shadow covering the bone surface. In the early stages of the condition the periosteum may show a local thickening. In some cases the periosteum is actually separated from the bone by inflammatory fluid which is represented by a black shadow.

In a later stage of the disease, periosteal bone is laid down, leading to a bony outgrowth which appears as a delicate shadow on the bone surface in the radiograph.

*Osteomata.*—True bone tumours are sometimes seen in animals, but not nearly so frequently as in the human subject. In this respect the responsibility of the veterinary radiologist is a much lighter one.

Bony growths of an inflammatory origin called exostoses are exceedingly common, particularly in horses, and X-ray examination may provide valuable information in this condition.

It is generally difficult to decide whether a bone tumour or an exostosis is responsible for a certain shadow on a radiograph. An exostosis usually springs from the bone surface and casts an irregular shadow, somewhat less dense than the bone itself which shows little alteration in texture. An osteogenic tumour may commence either in the medulla or the cortex and cause an expansion of the surface of the shaft.

In some cases it actually penetrates the cortex and extends into the soft tissues. The type of shadow cast by the tumour varies from light to dark according to its density, and in some cases it has a marbled appearance.

An exostosis generally appears to be much smaller on a radiograph than might be expected from the enlargement which exists clinically. This is due to the covering of fibrous tissue, which is practically transparent, and casts only a very faint shadow compared to the denser one of the bone deposit. The true nature of the enlargement is revealed by X-rays and the extent of the bone formation can be assessed by the combined study of antero-posterior and lateral negatives.

Exostoses are in most cases very slow in developing and have often been observed radiologically before they were suspected clinically. A patient may be radiographed in which the injury is such that one expects to find a fracture and yet no abnormality can be seen on the film. A further X-ray examination a few weeks later reveals a large exostosis.

*Sinuses.*—It is sometimes possible to recognise a sinus or fistula on a radiograph if the cavity is extensive, but in most cases the shadow cast is so faint and indistinct that the interpretation is not made with any confidence. Exact information regarding the extent and direction of a sinus can be obtained if it is injected with a contrast medium before making the radiograph. There are several agents which are suitable for this purpose, but one which has the additional advantage of being inexpensive is liquid paraffin containing 25 per cent. iodine. If the material is injected under moderate pressure the sinus cavities will be filled and show as white shadows on the radiograph.

This technique has its uses in large and small animals, enabling the clinician to ascertain if a joint capsule has been penetrated. It has been of considerable assistance in cases of punctured feet in horses when the navicular bursa was involved.

Sinuses are often due to the presence of a foreign body, and provided the latter is opaque, such as a metal, it will cast a dense shadow, marking its position and outline. If the foreign body is a thorn, splinter of wood or other transparent matter it will not be visible on the radiograph. The injection of iodised oil in such cases, will sometimes make transparent bodies recognisable, by surrounding them with opaque material, and so casting a somewhat darker shadow within the dense shadow of the opaque substance.

### Special Radiology of Horses

Of all parts of the equine anatomy calling for X-ray examination, the fore foot is the most common. This is due to the fact that the foot is not only very subject to conditions which cause lameness, but also its diseases are frequently difficult to diagnose with certainty by clinical methods.

The structures of the horse's foot, with its variety of densities, make it an unusually difficult radiological problem, owing to the amount of scatter and secondary radiation. Research work devoted to this subject recently has resulted in a technique which overcomes most of the difficulties and radiographs of considerable diagnostic value can now be obtained.

The horse's foot must be placed in a special stand with ledges at an angle of 45° for the accommodation of the inner and outer borders of the sole. The anterior wall of the hoof in this position becomes perpendicular and this posture is called the upright pedal route.

The cassette with a Lysholm grid in front of it is placed immediately behind the heels and approximately parallel with the tendon surface of the navicular bone. The X-rays are directed so that the centre of the beam passes through the navicular bone and strikes the film at a right angle.

The distance between the film and tube should be 27 to 30 inches, the voltage 80 k.v. peak and the current 40 milliamperes. The exposure time with the above calibration is half a second for average feet, but it is necessary to increase this up to one second with very large feet.

It should be remembered that the X-ray output varies slightly in different tubes when the same tensions are applied and the calibrations mentioned may have to be modified to suit the particular tube used.

When 10 in. by 8 in. films with appropriate cassettes and intensifying screens are used in the manner described, it is possible to obtain radiographs of all the digital bones with practically no distortion. The shadow of the navicular bone is cast in relief behind the short pastern bone.

The central and lateral frog clefts provide air spaces, which cast dark shadows over the pedal, navicular and short pastern bones and may lead to errors in interpretation. These shadows can be eliminated by filling the spaces with a paste made from horn filings and lard—a mixture having approximately the same X-ray density as horn.

A radiograph of the lateral aspect of the digit can be made by simply resting the foot in the normal standing position on a block about three inches from the ground. The grid and cassette are held perpendicularly close to the inner side of the foot, with the lower edge slightly below the sole. The X-ray beam is directed from the side so as to strike the film at a right-angle.

*Navicular Disease.*—Radiographically navicular disease is indicated by dark shadows on the image due to a loss of density in patches.

In the early stages the bone may be intact but slightly decalcified, whilst in the later cases actual cavities may exist. The shadows on the radiograph will consequently vary in intensity. When caries is present the diagnosis is a simple matter, but otherwise the shadows are of a very delicate nature and can only be recognised on a film with good detail and by a radiologist with this particular experience.

Should the navicular area on a negative be thin through poor penetration, the faint shadows of disease will not appear, and no interpretation should be made in such a case.

The nutrient foramina cast small shadows along the inferior border of the navicular image, and if these are distinct, it is a certain indication that the bone has been penetrated sufficiently to show shadows of disease if they are present. These shadows may appear anywhere within the navicular image, but in most cases they are towards the centre.

A lateral view of the digit will show the navicular bone from the outer extremity, and the compact bone of the periphery is seen in good contrast with the cancellated bone in the centre. In advanced cases the compact bone in the tendon surface may have an eaten out appearance due to erosion or caries. This is often difficult to recognise and diagnosis by the lateral view should always be confirmed by a radiograph in the antero-posterior direction.

The shape of the navicular bone represented on a radiograph by the outline of the image is influenced by depositions of new bone or osteophytes on the upper border and extremities. Irregularity in outline is very easily recognised on a negative.

It is not known definitely if osteophytes on the upper border or spurs on the extremities are part of a true navicular disease, or arise from other causes. The association, however, of these outgrowths with decalcification or caries of the bone is so usual that the radiologist is almost justified in diagnosing navicular disease when they exist.

The shape of normal navicular bones in different individuals varies considerably, and it is always advisable to make a radiograph of both feet for comparison, before concluding that a particular bone is of abnormal shape.

There is often a hazy appearance of the navicular image, particularly towards the upper border, whilst the other digital bones are shown in good detail. This may be due to thickening of the synovial membrane and other soft structures, with possibly some calcification. It indicates a bursitis and is strong evidence of the early onset of navicular disease.

*Ringbone.*—Outgrowths of bone which spring from the lateral borders of the pastern bone are easily recognised on a radiograph taken by the upright pedal route. The advantage of this posture is that the structures within the hoof can be examined on the same film. This procedure is necessary because radiological aid is generally sought when the case is one of obscure lameness and an abnormal condition of the other structures may exist in addition to ringbone.

A lateral radiograph must always be made in addition to the antero-posterior view, as the exostosis may be on the anterior surface of the bone and would only be apparent in this direction.

Ringbones are indicated by shadows rather darker than the bone from which they arise, probably due to the fact that the fibrous bone of which they consist is less dense than the normal bone. The outline of a ringbone is nearly always irregular and should a regular enlargement on the extremity of a pastern bone be encountered, the possibility of its being an artefact due to distortion must be considered. It is important to note the relationship of a ringbone to the articulation, as such information may be of value in prognosis. When a ringbone casts a shadow which shows less density at the periphery than at the base, it may be an indication that it is still active.

*Sidebones.*—The normal lateral cartilage is transparent and shows no evidence on a radiograph. When the cartilage is calcified it becomes opaque and casts a more or less dense shadow extending from the retrossal process of the pedal bone.

The retrossal process of a normal foot, on a radiograph by the upright pedal route, reaches the level of the upper border of the navicular bone. If the shadow extends beyond this point it is an indication that sidebone exists. In advanced cases the shadow may reach the level of the coronary joint, when it usually has a tendency to curve inwards.

The ossification of the lateral cartilage generally commences at its attachment to the retrossal process of the pedal bone, but cases are sometimes seen radiographically where an isolated centre of ossification exists in a remote part of the cartilage and is separated from the pedal bone by a completely transparent area.

In a radiograph taken by the upright pedal route the X-rays have to traverse the depth of the ossified cartilage, which is considerable, and therefore the shadow is dense and narrow. A lateral radiograph shows the broad surface of the cartilage, but the shadow is dark and faint because the X-rays have only a few millimetres of calcified cartilage to penetrate in this direction. The existence and extent of sidebone can be diagnosed radiographically with little possibility of error.

*Pedal Ostitis.*—The clinical diagnosis of pedal ostitis is usually only made by the process of elimination, and doubt can often be removed by

X-ray examination. There are certainly stages of the disease when it is difficult or impossible to recognise it by X-ray, but in many cases changes have developed which are evident on a radiograph.

The pathology of pedal ostitis includes both absorption and proliferation of bone. The former is indicated radiographically by a loss of density and consequently a darker shadow, usually involving the inferior edge of the pedal bone. This area has a notched appearance, and occasionally a considerable part of the border is obliterated on the negative.

Proliferation of bone may be recognised by the small outgrowths from the inferior edge, giving to it a distinctly irregular outline. The wings of the pedal bone are often involved in this new growth, when they cast a shadow which is wider and more irregular than normal. An outgrowth extending inwards from the retrossal process has been frequently seen radiographically and confirmed by *post-mortem* examination. This condition casts a dense white shadow which crosses the extremity of the navicular bone, when the upright pedal route is adopted.

The antero-posterior direction only can be relied on for the radiography of pedal ostitis, as rarely can any information be obtained by the lateral view.

The pedal bone is relatively thin at the anterior part of the inferior edge; this area is consequently blackened on a radiograph and sometimes to such an extent that all detail is lost. This can be overcome by raising the X-ray beam, so that the centre strikes a point somewhat higher than the navicular bone.

*Sesamoiditis.*—The sesamoid bones in the horse can be examined concurrently with the fetlock joint, the upper part of the first phalanx and the lower part of the large metacarpal or metatarsal bones.

The cassette is held perpendicularly behind the fetlock and rested on a firm block for the fore limb and in front of the hind limb. The X-rays are directed so that the centre of the beam approximates the articulation of the fetlock joint, and strikes the cassette at a right-angle. A lateral view is obtained by a similar procedure, except that the cassette is held on the inner side of the joint and the X-rays directed from the outer side.

The normal sesamoids have a well-defined symmetrical outline on a radiograph and the bone detail is distinct. When sesamoiditis exists the image of the bones is usually rather hazy, owing to the thickening of the metacarpo-phalangeal sheath, which generally accompanies this condition.

The dark line indicating the space between the sesamoids may be reduced or entirely obliterated when ankylosis has taken place. The outline of the bones becomes asymmetrical from bone deposits on the external surface at the point of attachment of the great suspensory ligament, and more rarely on the bases at the origin of the inferior sesamoidean ligaments.

The lateral view shows the outline of the posterior surface of the sesamoids, and any evidence of outgrowth is easily recognised.

Involvement of the anterior articular surface of the sesamoids is indicated by a narrowing or obliteration of the dark lines between this surface and the articular surface of the large metacarpal bone.

The metacarpo-phalangeal articulation is often also involved in cases of sesamoiditis and it can be examined on the same radiograph. Calcification of the interosseous ligaments is indicated by dense and narrow shadows which cross the joint. Erosion of the articular cartilage reduces the normal space between the bones forming the articulation and is often accompanied by lipping or small outgrowths from the borders of these bones.

The radiographic evidence of arthritis of the fetlock joint is often rather insignificant, and the importance of relatively minute changes must be duly assessed.

*The Carpus.*—Radiographs of the horse's knee can be made with the same technique as described for the fetlock joint. The multiple articulations of the carpal bones, some of which appear to be superimposed on a radiograph, rather complicate the X-ray interpretation of this joint. It is always advisable to make a negative of the normal knee at the same time for purposes of comparison.

The dark lines of the articular spaces are normally clear, but become blurred or even entirely obliterated when fusion of the carpal bones has taken place.

In the antero-posterior view the pisiform bone appears in relief behind the carpal bones as a dense shadow. It is sometimes possible to recognise a fracture line or the dark shadows of carious areas in the pisiform bone in this radiograph. Osteophytes which arise from the carpal bones on the inner and outer aspect of the joint appear as dark but well-defined shadows.

A lateral view of the knee joint demonstrates osteophytes on the anterior aspect. In this view the pisiform bone is seen as a semi-circular dark shadow protruding from the back of the carpus. A fracture is easily recognised as the fragments are usually well separated, making the fracture line distinct. Patches of necrosis are shown as irregular dark areas in the pisiform shadow.

The heads of the small metacarpal bones are examined on the antero-posterior radiograph. The dark articular lines between these bones and the respective carpal bones may be partly or completely obliterated from ankylosis. These

cases are usually accompanied by a knee splint, which is indicated by a shadow which extends laterally from the small metacarpal bone just below the head.

*Splints.*—Antero-posterior and lateral radiographs must be made for the complete examination of the metacarpal bones, as an exostosis may only be seen from one direction. Information regarding the situation and extent of splint formation, which may be impossible clinically, can be obtained by X-rays.

A splint of long standing casts a dense shadow due to its complete calcification, but in an early and probably active one, the shadow is darker and often more so towards the periphery.

The elbow and stifle joints of the horse can be satisfactorily radiographed, with the same calibrations as for the foot, but the thickness of the bones in these regions necessitates an exposure time of one to one-and-a-half seconds.

Arthritis of these joints, or fractures, may be encountered and are recognised on the lines described elsewhere. When making an X-ray examination of the stifle joint, it is always advisable to include the whole of the fibula in the radiograph, as a fracture of this bone may exist and be unsuspected clinically.

It is not possible to radiograph the shoulder or pelvis of the horse, because apparatus as yet available is incapable of penetrating satisfactorily the mass of tissue involved.

*The Tibia.*—It is frequently impossible to ascertain clinically the extent of injuries to the tibial region in horses. X-ray examination in these cases may be of great value in demonstrating the presence of an undisplaced fracture, which may separate if the animal is exercised.

A fracture of the tibia may be linear, appearing as a dark line on the image, or it may be circular with several fine lines radiating from a central point.

Radiographs must be taken in both directions and include an area above and below the seat of apparent injury, otherwise a small fracture may easily be missed.

*The Hock.*—Radiologically the hock joint resembles the knee in its complexity, numerous dark linear shadows appearing on the negative which represent the articulations of the tarsal bones, some of which are superimposed. For the recognition of abnormal conditions of this joint the radiologist must be familiar with the X-ray normal and even then it is always advisable to make a radiograph of the normal hock for purposes of comparison.

The tarsal bones may be ankylosed, in which case the articular shadows are obliterated. In the early stages of ostitis the bones may have lost density, which is demonstrated by a darkening of their shadows.

Arthritis leads to erosion of the articular cartilages, and the dark shadows of the articular spaces are narrowed.

These conditions only may be observed in occult spavin, but in cases where an enlargement exists the outgrowths cast faint shadows extending from the bone surfaces or from the borders when lipping is observed. Spavin with enlargement is usually easily recognised clinically, but the extent of articular involvement can be ascertained by X-ray.

A postero-anterior and a lateral radiograph are necessary for the complete examination of the hock joint.

*The Neck.*—Radiographs can be made of the horse's neck from the atlanto-occipital articulation to the sixth cervical vertebra. The great thickness of the tissues in this region makes penetration difficult, and a relatively long exposure at a high tension is necessary, with the inevitable result that scatter is considerable. The radiographs are usually so poor in clarity that only gross lesions in the vertebrae are recognisable. The lateral direction only is possible in this region, and abnormalities which do not appear in this view are not demonstrable.

In radiographing the neck of the horse movement is usually very difficult to control unless the animal is cast, and this is nearly always dangerous in the class of case requiring X-ray examination. The application of a twitch is a great assistance in immobilising the patient.

The tube must be elevated to the level of the area being examined and the cassette held steadily on the opposite side of the neck.

A tube voltage of 80 k.v. peak and a current of 35 milliamperes for two to three seconds is usually satisfactory when intensifying screens and a grid are used.

This technique can be adopted for the examination of the oesophagus, but as the latter is transparent it is necessary to introduce a contrast material. Specially purified barium sulphate well mixed with mucilage of acacia to the consistence of thick cream is satisfactory. The opaque substance is introduced into the upper part of the oesophagus by means of a stomach tube, and about 20 fluid ounces is necessary. A radiograph must be made almost simultaneously with the introduction of the contrast medium and two more at intervals of a few minutes.

The normal oesophagus appears as an even, narrow, white shadow extending to the thorax, beyond which it cannot be demonstrated in the horse.

A stricture of the oesophagus casts a shadow which is narrow at one point, whilst in the case of a diverticulum it is enlarged, or if the direction is suitable may even have a definitely pouched appearance. In complete blockage of the oesophagus the shadow comes to a sudden end and shows a dilatation immediately above

it. When the oesophagus is ruptured the opaque substance passes into the surrounding tissue, and the radiograph presents an irregular diffused shadow outside the oesophageal outline.

. . . . . .

**Discussion**

In the ensuing discussion Colonel G. K. Walker acknowledged that he had received very great assistance from the diagnostic radiological work performed at the school. It usually enabled a prognosis to be arrived at quickly and in cases where this was unfavourable animals could be cast and disposed of without keeping them under observation and often fruitless treatment for long periods. Moreover, where animals were destroyed on X-ray reports the findings were always checked by *post-mortem* examination and he found that the margin of error was very small indeed.

He often regretted that such an apparatus was not available during the World War. It would have been of great assistance in dealing with gunshot wounds, the surgery of which was sometimes notoriously difficult.

Mr. N. S. Barron asked Major Oxspring what he regarded as being the cause of caries such as occurred in the navicular bone.

Mr. H. S. Caldwell enquired as to the significance of the fractured fibula in the film of that condition and also whether the lameness was of long duration. He also stated that in equine tuberculosis the causal bacilli were usually present in enormous numbers. Was this the case in the tuberculous cavity which Major Oxspring found in the *os coronae*?

Majors Bamford and Knowles also took part in the discussion.

Major Oxspring, in his reply, said that many theories could be advanced as to the cause of the caries in navicular disease. His own view was that the condition originated from trauma; hyperaemia and decalcification ensued, followed by loss of stability, collapse of the tendinous surface of the bone and caries. He had seen haematoma formation in the part and believed that the primary sprain took place near the superior navicular ligament. Answering Mr. Barron, Major Oxspring said that the case of fracture of the fibula arose from a kick and that the lameness was severe, although that might have been due in part to bruising of the soft tissue. Fracture of the head of the tibia was suspected; X-ray examination, however, showed that this was not the case but that it was the fibula which was fractured. In the other animal the cavity in the *os coronae* contained acid-fast bacilli in enormous numbers.

## YOUNG FARMERS' CLUBS

A Conference which had been convened by the Carnegie United Kingdom Trust, with the concurrence of the Ministry of Agriculture and Fisheries, was recently held in London on the subject of Young Farmers' Clubs. Representatives of many county councils and bodies interested were present, and the Conference gave them an opportunity of expressing their views on the growing strength of the movement and other kindred topics. At the Conference, the Minister of Agriculture reaffirmed the Government's intention of assisting the movement by ranking county council grants in respect of Young Farmers' Clubs with other county council grants made to assist agricultural education and as to which the Government contributes 60 per cent. of the total.

*The Veterinary Record*

December 5th, 1936.

## VETERINARY INVESTIGATORS

DURING recent times much has been written and said about veterinary investigators, and it is generally agreed that if research into the diseases of animals is to be conducted as it should be, there is room for a further increase in the numbers doing research. This apparent dearth of veterinarians willing to embrace a career of research has been ascribed to various causes and there is little doubt that the result is due to many factors acting together.

Sir Merrik Burrell recently said in public that "the only thing which was stopping the Agricultural Research Council from putting such work in hand was the fact that they could not find the men to do it. . . . Young men were not going into the research world in the way they had hoped. That problem would only be solved if they could attract the right men to the profession and then teach them in the right way." We wonder why it is that Sir Merrik with his rich experience, has such an unerring way of stating a problem and then of drawing a wrong conclusion, or at least of suggesting in his deductions that a part of the problem is in fact the whole. Mr. Dalling, whose experience and success in veterinary research is acknowledged by all, answered some of these points when, as reported elsewhere in this issue, he was recently presented with the "Victory" medal by the Central Veterinary Society. Mr. Dalling said: "It is true that there has been a dearth of research workers in the profession in the past, but I feel that without flattering ourselves we can boast of the accomplishment of much of importance showing that the profession does contain the necessary type of worker." It would indeed be refreshing to our pioneer research workers to hear an appreciation of their many and valued efforts in the past in the realms of animal disease at a time when the conditions of their work were so ill-supported and unsatisfactory as to merit the description of a "national disgrace." A refutation of the suggestion that the body of 40 to 50 veterinarians now engaged in research are ill-fitted for their tasks would also be welcomed by the profession. Surely it ill becomes public men such as Sir Merrik Burrell to draw attention to the shortage of men for veterinary research without adequately discussing its causes and

without taking great pains to appraise fairly the past efforts of the growing band of veterinary investigators who have been surveying and developing much of the field of research into animal diseases during the last few years. Indeed, an attempt to appreciate these difficulties cannot be removed from a survey of the conditions associated with veterinary research in the past. The present-day reviewer is apt to forget the words of the Special Committee that examined these conditions for the Development Commissioners, in 1921. This committee reported in 1922 that in veterinary medicine in Great Britain there were few scientific men (numbering probably less than six) who were then able to give their whole time to the investigation of animal disease. They added that "investigators in human disease have long enjoyed facilities that have been denied to investigators of the diseases of animals" and they recommended that "an essential part of any scheme for the improvement of veterinary research is the gradual creation of a cadre of research workers with those definite prospects of tenure, pay, promotion and superannuation benefits essential to secure their recruitment." In conclusion, they stated that "there are a certain number of posts now available and much difficulty is experienced in finding men of the right qualifications to fill them. This difficulty arises from the intermittent character of the demand and from lack of organisation."

How far have these recommendations been implemented? Since the inauguration of the Agricultural Research Council and the allocation of greater financial help to research into animal diseases, the organisation of this research may be said to be fairly well advanced. We contend, however, that in the matter of appointments conditions are still unsatisfactory and appear at times to be planned spasmodically rather than with a long view. The fact that veterinary research is largely confined to four or five institutes has in the past led to a lack of the prospects that this committee recommended. The early salaries, although low in comparison with those available in certain other spheres of veterinary employment, are probably not the gravest deterrent; rather is this the lack of opportunity for adequate promotion, for the organisation of the research institutes at present allows of little chance of senior posts with satisfactory salaries. This emphasises the importance of such posts as the very few directorships of these institutes to the young enthusiast beginning his career. Some months ago the "National" waited upon the Ministry of Agriculture to discuss this question and certain proposals, still being considered by the Ministry in consultation with the Agricultural Research Council, were laid before the authorities. We feel the time for these improvements is long passed and we would urge the Government Departments concerned to act upon the advice of the 1921 committee and of the N.V.M.A. and introduce the necessary reorganisation as soon as possible. We feel confident that the number of veterinarians entering research will soon be adequate if the conditions of the tenure and the prospects of these posts be altered in the way indicated.

Other problems connected with the transfer of veterinarians from research after years of training and the character and quality of that training claim further discussion in a subsequent issue, but for the moment we must conclude by reaffirming our view that the amount and quality of the research into animal diseases and the increase in the research personnel from about six to nearer 40 or 50 within a period of ten to fifteen years merits more appreciation than it usually receives. These accomplishments, although falling far short of those we are hopeful of achieving, are not such as require public rebuke: in fact, a modicum of public appreciation at times would not be out of place.

## COPPER IN CULTURE MEDIA

"Experiment is indeed a hazardous business and the experimenter's path seems to be surrounded by impish circumstances," says *The Lancet* in a recent number. "Bacteriologists noticed a long time ago that they often failed to get a satisfactory subculture if they implanted only a few organisms, and a number of workers looked into the matter, suggested various explanations, and found several methods by which the difficulty might be evaded. Drs. R. A. Q. O'Meara and J. C. Macsween have lately found that most at any rate of the trouble with such an organism as the staphylococcus is due to the presence of copper which is brought into the culture medium either in the peptone or from using copper utensils in brewing it. Hence they say the known superiority of broths in which the peptone is cooked up with the meat (which absorbs the copper) instead of being added to the filtered meat extract. Others have we believe noticed the poisonousness of copper funnels for filtering hot media, but not unnaturally no one seems to have suspected that commercial peptone could contain enough of the metal to make a difference. Some peptones also have a good deal of iron, but this the bacteria seem to meet with equanimity. Is it possible that the superior keeping qualities of old-fashioned jam were due to the copper which was dissolved in considerable quantities from those magnificent stewpans which adorned the kitchen mantelpiece? Perhaps, too, such jam might prove an elegant vehicle for those who want to give copper to anaemic children?"

# Clinical Communications*

By

MARY L. SOMERVAIL, M.R.C.V.S.
Durrington, Nr. Worthing

## Extraction of the Ocular Lens.

*Subject.*—A Pekinese dog, about two years of age.

*History.*—Following an outbreak of distemper in the kennels the preceding December, this Peke suffered from corneal ulcers in both eyes, the left being the more markedly affected. With treatment, the condition cleared up fairly well, although several opacities remained.

Nothing more was heard of the patient until last June, when he was brought to the surgery showing dropsy of the left eyeball. Tapping of the anterior chamber was tried on two occasions, but without conspicuous success, and since all sight had gone, the owner decided to have the eye collapsed, preferring this to actual extirpation of the eyeball.

*Procedure.*—Following the administration and effect of morphine sulph., ½ grain hypodermically, anaesthesia was induced with chloroform, while a pad soaked in 5 per cent. cocaine solution was applied to the eyeball. The cornea was punctured practically in the centre of its lower margin, and when the knife was withdrawn the lens was impaled on the point. A pad soaked in weak zinc sulphate solution was applied and bandaged into position.

After-treatment consisted in keeping the animal in a darkened kennel and bathing the eyeball with zinc sulph. solution.

*Remarks.*—The result was most satisfactory. There was practically no shrivelling of the eyeball, the only deformity being a slight concavity where the knife had entered, and as this was on the lower part of the eye it was scarcely noticeable; also it is now quite difficult at a distance to distinguish the sound from the unsound eye.

I do not know whether the small amount of deformity is due to the lens having been removed, but in any other case where the eyeball has been collapsed it has always shrivelled away almost to nothing.

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## Nembutal in Parturition

*Subject.*—A female black cat of uncertain age and weight of just over 9 lb.

*History.*—When the cat was brought to the surgery it had been in labour for nearly 36 hours, during which time it had produced five very small dead kittens. For the last twelve hours or so it had been striving to pass one kitten, two legs of which had been presented, but had been removed by the well-meaning efforts of the owner. (He presumed that these must be hind legs and that if he pulled sufficiently hard he would be able to deliver the kitten, instead of which the legs came away in his hand.)

Vaginal examination revealed that the head of the foetus was doubled downwards below the brim of the pelvis, and that the owner had removed the fore and not the hind legs of the kitten. Manipulative efforts to deliver the foetus proved unsuccessful and as the mother cat was growing weaker it was decided to perform ovarohysterectomy.

*Procedure.*—The cat was given 2½ grains of nembutal by mouth, and by the time the stage was set for the operation narcosis was complete, but the labour pains continued and were particularly well marked whenever the abdomen was touched as in shaving. To obviate this, light chloroform anaesthesia was induced and the operation successfully performed in the middle line.

*Remarks.*—My sole reason for mentioning this case is that it was the first time I had ever used nembutal under such circumstances and I was most surprised to find that it did not cause cessation of labour pains.

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## Snake Bite

*Subject.*—A black Scottie pup aged about eight months.

*History.*—The puppy had been playing in the garden and was bitten by an adder on the angle of the jaw about an hour previous to my visit. When seen, the left side of the face was enlarged and tender, there was no temperature, the pulse was rapid and fairly strong, but the dog and its owners were in a highly nervous state. Before seeking professional assistance, the owner had got into touch with her son, a well-known London doctor, who said he would send down some antivenom as soon as possible.

*Treatment.*—Text-books on the subject of snake bite state that the correct procedure is to apply a tourniquet between the bite and the heart, and also to open the swelling and dress the wound with potassium permanganate crystals. Unfortunately, when the head is the seat of injury one can scarcely apply a tourniquet without strangling the patient, and the angle of the jaw is not the happiest spot at which to make a bold incision. In view of this, I injected 2 c.c. of neat Condy's fluid into the swelling and the puppy was wrapped up, kept warm and given half-a-teaspoonful of whisky every 15 minutes until the arrival of the antivenom some five or six hours after the accident. The antivenom came absolutely ready for use in a container; 5 c.c. was injected subcutaneously that evening and the remaining 5 c.c. the

*Communicated to the West Sussex Division, N.V.M.A., at a meeting held at Brighton on October 9th, 1936, the business proceedings of which received publication in our last issue.—*Editor.*

following morning, by which time the swelling had practically disappeared and the puppy was to all intents and purposes normal.

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**Regeneration of Sex Organs?**

*Subject.*—A black neuter female kitten aged 15 or 16 months.

*History.*—The cat had been spayed about a year previously, both uterus and ovaries being removed. In May, 1936, the cat gave birth to a family of five, and the owner presumed that since one black cat looks very much like another, she must have undergone a change of pet without being aware of the fact. She decided, however, to let the mother cat rear one male kitten and then it was to be destroyed.

*Post-mortem Findings.*—The cat was destroyed on July 11th and a *post-mortem* examination made to discover if it was the original spayed animal or not. This revealed that instead of the uterus being composed of a body and two horns, it consisted of a tube, communicating at the anterior end with what appeared to be a knot of tiny blood vessels, presumably acting as an ovary, and situated high up in the abdomen, more or less in the middle line. The cat was again in kitten and the tube contained four apparently normal foetuses.

*Remarks.*—As this was my first experience of such a happening, I was very relieved to find that the owner did not blame me for the occurrence. I suppose a portion of ovary must have been overlooked during the original operation and the new set of organs arose from that—which theory would be more tenable if only ovariotomy had been performed, but when uterus and ovaries were removed I think Nature must have worked overtime to reproduce them in under twelve months.

BACTERIAL FLORA OF BLOW-FLY LARVAE

A "research item" appearing in a recent issue of *Nature* reads as follows: "We have received from Dr. N. Balzum, ul. Nowolipki Nr. 21, m.5, Warsaw, a short, preliminary communication on this subject. It appears that the larvae of *Calliphora erythrocephala*, and also the young and older pupae, contain numbers of bacteria—it is stated about two million per individual. In the course of metamorphosis they disappear from the larval alimentary canal and pass to the tissues of the nymph where they become localised, since they do not occur in the haemolymph or the newly formed gut. On the last day of pupal development, rapid destruction of the bacteria takes place, and in the great majority of flies none is found several hours after hatching. Dr. Balzam supposes that a cellular or phagocytic activity explains the passage of the bacteria from the larval gut to the tissues of the nymph and their absence from the haemolymph. The final result is that, owing to complete 'auto-sterilisation,' the young flies are free from bacteria, and, therefore, do not disseminate pathogenic germs derived from the larvae. A full account of the work, it is stated, will appear in a coming issue of the *Annales de l'Institut Pasteur.*"

# Abstracts

**[Novarsenobenzol and Gonacrine in the Treatment of Pyretic Conditions in the Horse.** (Trans. title.) Velu, H., Weyland, H., and Sarthou, Ch. (1936.) *Bull. Acad. vét. France.* **9.** 3. 158-164. (10 charts, 1 ref.)]

This article is a preliminary report on the value of novarsenobenzol and gonacrine in the treatment of febrile conditions in horses. In the case of the first-named drug, five horses showing pulmonary congestion and elevated temperatures received injections of 4 grammes on three consecutive days. No improvement was noted, the drug appearing to be without any influence whatever on the course of the disease.

Gonacrine was employed in the cases of seven horses showing pulmonary congestion, one of pneumonia, one of gangrenous pleuropneumonia and two of infectious paraplegia. The dose employed was 1 gramme administered by the intravenous route. In all cases a marked improvement resulted, the temperature returning to normal within three to four days. In connection with the case of pleuropneumonia, however, an antiserum was employed concurrently with the gonacrine, rendering indefinite a proper appreciation of the value of the drug in this particular case. C. D.

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**[Treatment of Infectious Conditions in the Horse with a Chrysoidin Derivative.** (Trans. title.) Pean, H. (1936.) *Bull. Acad. vét. France.* **9.** 1. 51-52.]

The author claims success in the treatment of cases of strangles, dealers' fever and other febrile conditions of young horses by the intravenous use of chlorhydrate of sulfamidochrysoidin. The drug was employed in doses of 60 c.c. of a 0·5 per cent. solution, repeated daily for three consecutive days in the more obstinate cases. A general improvement invariably followed in 36 to 48 hours. Red discolouration of urine, shown a quarter-of-an-hour after the injections were made, was the only physiological reaction noted and indicated rapid elimination of the drug from the body.

C. D.

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**[Tetany in Young Cattle.** (Trans. title.) Moine, G. (1936.) *Rec. Méd. vét.* **112.** 7. 397-404.]

This article discusses tetany from the clinical and therapeutic aspects, including a discussion on its aetiology. An account of some half-dozen cases is given.

The symptoms were either sudden or insidious in onset, from a month or several days to one hour. In the insidious form the animal is dull, often lying down; it has a haggard air with

periodic inappetence. There may be shivering, trembling, tympany of the rumen and sometimes diarrhoea and shallow breathing. There is incoordination of movement. The sudden contact with bright light or noise may precipitate a crisis. In the crisis there are tonic and clonic contractions accompanied by harsh cries; there is stiffening of the vertebral column and opisthotonus, the head and neck are outstretched and the ears pricked. The jaws are contracted and grinding of the teeth occurs. The crisis may become progressively worse and end in death, or the symptoms abate till an uneventful recovery results. No characteristic *post-mortem* findings were noted. The typical cases occurred in calves a few weeks old, but three atypical cases are described in heifers.

Spectacular results were obtained by the intravenous injection of 4 to 5 grammes of magnesium chloride in 10 to 15 c.c. of 30 per cent. glucose water daily. Prophylactically 2 grammes of calcium chloride and 1 gramme of magnesium chloride per day were given during the winter. Twenty drops of ergosterol a day were also given. The beneficial effect of exposure to the sun's rays is also suggested.

D. L. H.

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**[I.—The Persistence of Brucella in the Aborted Foetus and its Membranes; II.—Examination of Faeces and Urine of Cows for the Presence of Brucella abortus.** Bosworth, T. J. (1934-35.) Inst. Anim. Path., Camb. **4.** pp. 65-71 and 72 78.]

I.—The author attempted to determine the survival time of *Br. abortus* in aborted foetuses and membranes under field conditions. Specimens shown to contain *Br. abortus* by cultural methods were placed in wire netting cages in a grass field and were examined periodically by the inoculation of guinea-pigs. Four foetuses and two foetal membranes were examined in this way. *Br. abortus* was isolated from the foetuses for 65, 78, 134 and 182 (or over) days respectively, and from the membranes for 118 and 147 days respectively.

II.—Sixty-eight samples of urine and 65 of faeces were examined for the presence of *Br. abortus*. These samples came from three cows all excreting the organism in the milk during the time of examination. The organism was isolated from two samples of faeces and from one of urine all from one cow, and from one sample of urine from another cow, though in this case there was some doubt as to its origin. The author considers his results justify a further investigation "to ascertain the importance of elimination by way of faeces and urine as a factor in the dissemination of *Br. abortus* infection in cattle."

F. W. P.

**[Acute Metritis in the Bitch.** (Trans. title.) Lesbouyries and Berthelon. (1936.) *Bull. Acad. vét.* **9.** 4. pp. 226-234.]

The authors studied 22 cases of acute metritis in the bitch and found that the first symptoms of metritis commonly were manifested within five days of parturition, though in two cases the interval exceeded ten days. In 17 cases an attempt was made to isolate bacteria which might have been the cause of metritis, and as a result *B. coli* was isolated four times, a streptococcus eleven times and both bacteria together twice. The cultural characters of the streptococci are given. The pathogenic action of the streptococci was tested by injecting a culture into the uterus of (*a*) bitches in anoestrum, (*b*) just before oestrum and (*c*) pregnant bitches, but the results were negative.

The common exciting cause is held to be trauma. In treatment the authors favour intrauterine irrigation with an antiseptic named "lusoform" combined with the intravenous injection of novarsenobenzol (12 to 20 cg.).

J. E.

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**[Pathogenesis and Treatment of Chronic Endometritis in the Bitch and Cat.** (Trans. title.) Lesbouyries and Berthelon. (1936.) *Bull. Acad. vét.* **9.** 7. pp. 346-9.]

The authors discuss the treatment of endometritis with particular reference to the use of follicular hormone, gonadotropic pituitary hormone and ovariectomy.

Follicular hormone had no curative value against metritis even after daily doses continued for as long as three weeks.

Gonadotropic pituitary hormone had a rapid curative effect on chronic metritis in four bitches and three cats, being given in daily doses of 50 to 100 "physiological units." It caused a rapid evacuation of pus and healing began to take place in eight to ten days, with recovery following.

In cases of pyometra associated with ovarian dysfunction, the authors have given anterior pituitary hormone to stimulate the ovarian cycle which has a beneficial action on the uterus, which empties itself of pus.

J. E.

## TRAFFIC IN DISEASED FOWLS

Serious allegations concerning traffic in diseased poultry were made at a meeting at Blackburn of the Royal Sanitary Institute. Mr. R. Catterall, of Turton, near Bolton, said he had been asked to call attention to the fact that thousands of birds which were absolutely ridden with disease were being sold for human consumption. He had heard of men going about buying diseased birds at from 3d. to 9d. each, and he had evidence of a case in which 400 fowls which had "gone light" (with tuberculosis) were sold for 3d. per head.

# Report

## CUMBERLAND

### REPORT OF THE COUNTY VETERINARY OFFICER FOR THE YEAR 1935

The Annual Report of the County Veterinary Officer to the Cumberland County Council for the year 1935, after an interesting introduction and a table showing the arrangement of districts, is divided into two sections, the first dealing with work carried out under the Milk and Dairies Acts and Orders, and the second with that under the Diseases of Animals Acts and Orders.

Section 1. *Milk and Dairies Order*, 1926.—The number of registered premises was approximately 4,000, of which 55 and 45 per cent. respectively produced liquid milk or cream and butter. Owing to the increased duties imposed on the Department, it was not found possible to visit all the registered premises. Additional visits were, however, made to farmers supplying milk where such were considered necessary or desirable. It is stated that "any increase in the amount of inspection of the non-graded herds was impossible with the existing staff," and reference is made to the desirability of instituting an Exchequer Grant for local authorities based on the rateable value per cow as recommended by the Cattle Diseases Committee of the Economic Advisory Council.

During routine inspections 44,739 cows were examined and of that number 19 were found to be suffering from tuberculosis of the udder, 43 from pulmonary tuberculosis and 20 from tuberculous emaciation. Reference is made to the varying incidence of tuberculosis in the county as shown by the careful records which have been kept since the commencement of routine inspection in 1926, of the incidence and distribution of clinical cases of tuberculosis, and it is suggested that certain districts where the incidence is low "present excellent opportunities for any well directed and practical scheme for the formation of tubercle-free areas."

*Milk and Dairies (Consolidation) Act*, 1915.—Four notifications, under Section 4 of this Act, from outside the county were received during the year—one from Sunderland, one from Whitley Bay and two from Carlisle City. In connection with the Sunderland report a bovine source of infection was detected, while in the Whitley Bay case of the five sources of supply involved, only one source—a tuberculin tested herd—was situated in the county. "Group" samples of milk from this herd were all negative to the biological test. In connection with the Carlisle reports, although two farms were involved, the samples which formed the subject of complaint were taken from accommodation milk and a creamery supply, and although the farm milks were found free from infection, it was found impossible to detect a source of infection in the other two sources of supply owing to the large number of farms involved.

As a result of a Joint Scheme of milk sampling within the county, 13 out of 569 samples submitted for biological examination were found to contain tubercle bacilli.

In following up the 13 positive samples, nine bovine sources of infection were detected, eight being found at the first clinical examination. Two of the reports concerned the same farm, and although no source of infection was detected in this case it was extremely probable that the offending cow had left the premises between the collection of the sample and the clinical examination of the herd, as changes in the herd were frequent and normal. The investigation of the remaining two reports had not been completed at the end of the year.

*Milk (Special Designations) Order*, 1923.—During the year the following licences were issued and continued in operation: certified 7, grade "A" (tuberculin tested) 15, and grade "A" 196. At the end of the year there were also 30 producers who had applied for grade "A" licences and who were expected to qualify shortly. It is interesting to note that the Veterinary Department was "responsible for the preliminary inspection of the herds, buildings, methods of production and distribution." Under the Attested Herd Scheme of the Ministry of Agriculture and Fisheries, two farmers in the county were registered at the end of the year.

Interesting information is given concerning the supply of milk to schools and public institutions, from which it is observed that 51 per cent. of the school population are receiving milk, the estimated amount supplied being 120,000 gallons per annum, a considerable quantity of which was from tuberculin tested cows. During the year 190 samples of milk from non-tuberculin tested herds were submitted to biological examination, and all proved negative, a result which reflects the greatest credit on the supervision of these supplies by the Veterinary Department.

Section 1 of the Report concludes with a paragraph on the facilities provided for the microscopical examination of suspected material and a table giving particulars of the examinations carried out by the Department.

Section 2. *Diseases of Animals Acts and Orders.*—This Section deals with the work of the Department under the Diseases of Animals Acts and Orders and begins with a record of the cases dealt with in accordance with the provisions of the Tuberculosis Order of 1925. Full statistical information concerning these

cases is given in three tables conveniently arranged in the text, while details regarding the compensation paid to owners are contained in Appendix 3 of the Report.

The total number of cows slaughtered under the Order during the year was 224, 34 of which suffered from tuberculosis of the udder, 83 from tuberculous emaciation, 106 from chronic cough and definite clinical signs of tuberculosis, and in one case no tuberculosis was found on *post-mortem* examination. The *post-mortem* examinations revealed that in 112 cases, or 50 per cent., the disease was "advanced" and in 111, or 49·6 per cent., it was "not advanced."

The year 1935 was the fourth successive year that the county had escaped an outbreak of foot-and-mouth disease.

During the year there were 85 reports of suspected cases of anthrax, but on investigation only five were definitely attributed to that disease.

It is specially interesting to note the great decrease in the number of outbreaks of sheep scab as compared with 1934. Of the eleven outbreaks confirmed during 1935, only six originated in the county, whereas the corresponding figures for 1934 were 47 and 44 respectively.

During the year there were 32 reported cases of suspected swine fever, six of which were confirmed by the veterinary staff of the Ministry of Agriculture and Fisheries.

The Report concludes with a statement on the inspection of markets and the importation of animals.

Included in the Appendix is a most interesting, informative and instructive graph on the cases dealt with under the Tuberculosis Order for the years 1932, 1933, 1934 and 1935.

Captain R. Simpson, F.R.C.V.S., D.V.S.M., the County Veterinary Officer, is to be congratulated on the issue of such a valuable, instructive and comprehensive record of the activities of the Veterinary Department under his direction.

### GENETICS OF THE PIG

"A monograph by A. D. Buchanan Smith, O. J. Robison and D. M. Bryant, dealing with this subject (reprint from *Bibliogr. Genetica*, 12. The Hague: M. Nijhoff) is a summary of all that is known of the genetics of pigs and will be very serviceable to the geneticist as well as the practical breeder," states *Nature* (November 21st). "Beginning with the chromosome number and the inheritance of colour in wild and domestic breeds, it goes on to hair and skin characters, blood groups, disease resistance, mental traits, sterility, intersexuality, numerous abnormalities and defects, conformation, productive qualities and methods of improvement in different countries. Twenty-one photographs of different breeds of pig are followed by a bibliography of 28 pages and an index which makes the information readily available."

# N.V.M.A. Divisional Reports

## CENTRAL VETERINARY SOCIETY

### SIXTY-THIRD ANNUAL DINNER

Some purposeful and therefore truly interesting speech-making, directed variously towards the elucidation of the history of metropolitan veterinary societies and the advancement of veterinary research, contributed materially to the enjoyment of the Annual Dinner of the Central Veterinary Society which, with the lighter aids to pleasure provided by entertainment and dancing, also achieved much success as a social function at the May Fair Hotel, W., on Thursday, November 5th, 1936.

#### "The Central Veterinary Society"

The very large company of Fellows, guests, and their ladies who were present in support of the popular President of the Society, Professor J. G. Wright, F.R.C.V.S., having duly honoured the loyal Toast, that of "The Central Veterinary Society" was submitted by the President of the National Veterinary Medical Association, Mr. R. Simpson, F.R.C.V.S., D.V.S.M.

The President of the Association, who was most enthusiastically received, said in the course of his remarks that it was a very great pleasure for him to propose that Toast; he could assure them that he greatly appreciated the honour the President and Fellows of the Society had done him in inviting him to be present that evening, and the compliment they had paid him in entrusting the Toast to his care.

It was true to say, he supposed, that amongst those assembled there, with possibly one exception, he had probably travelled furthest that day in order to be present at their banquet, but he was more than repaid for any little trouble he had taken in getting there, by the warmth and sincerity of their welcome.

Coming down in the train he had been considering some of the things which he might say in support of the Toast, and there had passed through his mind the names of many members of the Society who had been Presidents and members of Council of the Royal College of Veterinary Surgeons, who had been Presidents of the "National," and of others who had achieved eminence in their profession in many other directions. The Society had a long and honourable history and would that he had the silver tongue and the gift of eloquence, together with the necessary length of time to do justice to the Toast. He realised that he had been entrusted with it not because of any personal qualifications that he possessed or any gifts of oratory, but because he happened this year to be President of the "National," and he would

always look back upon that evening as one of the outstandingly pleasant incidents in his year of office. (Applause.)

Sitting there, he had been trying to frame in his mind some impressions of the Central Veterinary Society. His first impression on coming there was one of feeling instinctively at home. (Hear, hear.) That was but natural, for he found himself amongst members of the Society whom he had been accustomed to meet in the Council of the Royal College during the last six or seven years, whilst again he heard the voices of other members of the Society whose counsel and advice they were delighted to have in that body over whose deliberations he had been called to preside for a short time.

The Central Veterinary Society had a record of distinguished and ungrudging service to both the Royal College and the "National," framed in a background of professional attainment and in a scientific atmosphere which was at once the delight and perhaps, dare he whisper it, the envy of other Divisions of the "National" which were not so fortunately situated. In their Society also they had a large number of members of the profession not divided by any sectional or petty differences, but solidly combined in the furtherance of those objects for which their Society and the "National" had been formed. In short, a Society which the "National" was proud to have as one of its constituent Divisions.

He had to couple the Toast with the name of their President, Professor Wright. (Applause.) He (Mr. Simpson) was present as a visitor at their Annual General Meeting, when Professor Wright was elected, and he was therefore very glad indeed on the occasion of one of his first public appearances as President of the "National" that he was able to congratulate him and wish him a very happy and successful year of office. (Hear, hear.) In his opinion, the Central Veterinary Society had been singularly fortunate in its choice of Presidents. They had been chosen not for any particular scientific attainment, though many could be included in this category, but rather because of their personal worth and their devotion to the service of the Society and the profession generally. He was perfectly certain that in electing Professor Wright the Society had not departed from this excellent tradition.

In his researches into the past history of the Society he had found other evidence of its catholicity in that it imposed no restriction upon the choice of their Presidents in the matter of nationality. One found amongst their past Presidents such names as McIntosh and Macdonald—(applause)—and that great figure who dominated veterinary surgery for so many years, but who, alas, was no longer with them—he referred to Professor Macqueen. It seemed fitting that in this Coronation year, the Society should have elected a Londoner as its President, and he was going to say a full-blooded Englishman, until, to his consternation, he found that Professor Wright could not altogether be described under that category. [Professor Wooldridge: "A Welsher." (Laughter.)]

In conclusion he would like, as President of the "National," to convey to the Society collectively and to its individual members, his sincere good wishes for their future prosperity and welfare. (Loud applause.)

The President (Professor J. G. Wright, F.R.C.V.S.), who was accorded an ovation on rising to reply, said that he first wished to thank the President of the National Association for the very kind way in which he had proposed the Toast of the "Central." As they were all aware, that day witnessed the celebration of two functions, for not only were they, the Central Veterinary Society, holding their annual dinner, but also another veterinary society of London, that of the Royal Veterinary College, was celebrating its centenary. As the practitioners of the metropolis and the staff and students of the College had always been, more or less, intimately associated, it was thought that it would be appropriate to combine the two functions. The day had been celebrated at the College by a highly successful series of lectures and demonstrations by eminent members of the profession, at which a number of Fellows of the Society had been present as visitors, whilst that evening they were reciprocating, and were glad to be able to welcome a considerable number of students. (Hear, hear.)

Under these circumstances, he thought that it would not be inappropriate if, this year, something of the past history of the two societies was reviewed. Before doing so, however, he wished to say how pleased they were to have with them, firstly, Sir Frederick Hobday, who by his great energy and untiring efforts had been able to collect that very large sum of money which was necessary to qualify the College for the Government grant required for its rebuilding—(applause)—and secondly, they extended a warm welcome to Professor Buxton, whose duty it would be to administer and direct the activities of the College in the future. (Applause.) He did not propose to embarrass either of these gentlemen by reciting a list of their many accomplishments and attainments—these were well known to them all. (Hear, hear.)

Proceeding, the President said that it would appear that the first veterinary society to exist in London was formed in the College in 1813, 22 years after the College, the first institution for veterinary teaching in this country, was

founded. Prominent in its formation were two students, T. Mayer and W. Youatt, both of whom were subsequently to become prominent members of the profession. Unfortunately no records of the transactions of this society existed, for it was the policy of the College authorities in those days to maintain secrecy over the happenings within its walls. That its existence was continuous, however, was quite evident, for a report contained in *The Veterinarian* of March, 1836, of a function held at the Freemasons' Hall, quoted the President of the society, Mr. Sewell, the Assistant Professor at the College, to the effect that the society had then been in existence for 23 years, a source of much advantage to the students and an ornament to the College. Some confusion tended to arise about this point, because it appeared that in 1828 the practitioners of London formed a society, and to it they applied the name identical with that of the society already in existence in the College. Percival Youatt and James Turner were prominent in its formation, and its meetings were held at Nassau Street, Middlesex Hospital. This second society ceased to exist in 1832.

To return to the College society, which, as had been shown, was active in the early part of 1836—it appeared that there was much dissent amongst its members at the time, for shortly, in April, 1836, it was to be broken up. From the ashes of this old society there arose, almost before there had been time for them to become cold, a new and a better society, for membership was to comprise not only students, but practitioners as well, a combination which had long been wished for but had been impossible owing to the antipathies which existed between the College and the practitioners. It was to be named The Veterinary Medical Association, and its meetings were to be held weekly, on Tuesday evenings, in the theatre of the College. It was the formation of this society, the centenary of which was being celebrated that day. Its first President was the before-mentioned Mr. Sewell, its Secretary Mr. Morton (the Lecturer in Materia Medica and Pharmacy in the College), and its Treasurer Mr. Spooner (who at that time had a private school of veterinary anatomy). That society flourished as such for a number of years, but unfortunately the old antipathies were rearoused and the practitioners progressively left the society, until, by 1850, it had become entirely a student body, and as such it had remained to the present day. Twenty years were to elapse before there was another society of practitioners in London. In 1870 their Society was formed. It would appear that the name "Central" was inspired by that of a similar society which was in existence in Paris at the time. Its first ordinary meeting was held in October, 1870, at No. 15, Lower Seymour Street, Portman Square. Its first President was George Fleming, its first Secretary George Armatage, and prominent amongst the speakers at that first meeting was William Hunting, who was subsequently to found the *Veterinary Record*. (Hear, hear.) There were present 60 Fellows and visitors. Whilst the attendances at the Society's meetings might not have maintained this high original figure, it could, he thought, be not unfairly claimed that the Society had flourished. It had been a source of inspiration, instruction, and good fellowship amongst its members. (Hear, hear.)

Let them attempt to catch a glimpse of the life and activities of those days, 100 years ago, when the practitioners and students met in the Royal Veterinary College to discuss their problems. It was 20 years before the charge of the Light Brigade. (Laughter.) [The President was referring, in humorous vein, to the performance of an entertainer they had just heard.] The members of those days were expert anatomists; dissection formed not only an important part of their course, it appeared to have been their hobby as well. They were keen students of physiology, the horse's foot intrigued them. Their knowledge of materia medica and toxicology was extensive. They were rapid and skilful operators and obstetricians—they need have been, for those were the days before anaesthetics. Of micro-organisms as a causative factor in disease they had no knowledge, and their efforts were directed mainly to curative rather than preventive medicine. Thirty-five years were to elapse before Pasteur and Koch were, by their epoch-making discoveries, to revolutionise medicine. Mention of the name of Pasteur impelled him to refer to another Principal of the Royal Veterinary College—Sir John M'Fadyean. Our profession was indeed fortunate that it possessed in its ranks at the end of the last century a scientist of the brilliance of Sir John. He did much by applying the new science of bacteriology to the study of diseases of animals in England, to bring the veterinary art into the forefront of modern science. (Applause.)

What was London like in those days? It was a much smaller place than it was to-day. Reference to a map of 1835 showed that there were very few streets to the north of the New Road (now the Euston Road). Railways were in their infancy, King's Cross and St. Pancras Stations did not exist. They certainly were the days of the horse, for it was the main factor in transport. There were stage coaches and turnpikes. They would recall the many stage coach scenes depicted by Charles Dickens in the "Pickwick Papers," and they would remember the picturesque illustrations. They were written in 1836 and gave an intimate picture of London life in those days. It might be said, what of

Camden Town? It had played an important part in the lives of most of them gathered there that evening. It was not the thickly-populated, grimy district that it is to-day. Its dust destructor had not even been contemplated—(laughter); in fact, its scenery was almost rural. Green fields existed between the College and Battle Bridge (now King's Cross), Kentish Town was a village. They might not be aware that Camden Town had had its wells; their waters were highly impregnated with magnesium sulphate, and they were said to possess great curative properties. (Laughter.) He did not know, however, that it had ever been described as a spa. The river Fleet flowed down from the Highgate Fields, and passed just behind the College. One read that the students, when freed from the watchful eye of the Demonstrator of Anatomy, used to hold jumping competitions across the Fleet ditch, many ending in, rather than over it.

Would they visualise the College buildings of six years ago? Many of them were part of the original College, and it was not without a pang of regret that many had observed their demolition, for those old walls were steeped in the history of our profession. (Applause.) There were frequent references in the old literature to the lecture theatre. It was that room on the right of the entrance archway—many of them might have thought, as he did, that it was the most uncomfortable room ever designed. It was in it that the first meetings of the Veterinary Medical Association were held.

The President terminated this part of his reply with a facetious reference to the customs and appearances of those who might have been attending a similar function to that in those days of the past century, and proceeded: Sufficient of the past. Might he be permitted to say a word of the future? The profession was in the public eye to a greater extent that it had ever been. Our schools were full of students, and whilst the horse as an important factor in transport had almost ceased to exist, they were fortunate that its loss had been to a degree replaced by the great increase in the number of domestic pets. And yet he was one of those who believed that the future would offer many opportunities to the profession. The country's legislators were alive to the great importance of animal health both to the welfare of agriculture and to public health. He believed that those opportunities would be in the realm of preventive medicine and hygiene. They must have breadth of vision, so that they were well equipped to benefit in full measure by those opportunities when they arose. (Loud applause.)

### The Guests

The President, continuing, said that his next duty was a most pleasant one; it was to propose the health of their guests. (Applause.) They had with them a large number of distinguished guests that evening; he believed it was a record number. Amongst them were Mr. J. Willett, the President of the Royal College of Veterinary Surgeons, and Mr. R. Simpson, the President of the National Veterinary Medical Association, who had so kindly proposed the Toast of the Society. He had already referred to the presence of Sir Frederick Hobday, Professor Buxton and to the student members of the College Veterinary Medical Association, to all of whom they extended a hearty welcome. (Applause.) He believed that Captain Simpson was in error when he stated that he was probably the visitor who had travelled the greatest distance to be with them, for they had with them a guest from Scotland—Professor Boddie, of the Royal (Dick) Veterinary College, Edinburgh. (Applause.) He would ask Professor Boddie to convey their very good wishes to their many friends across the Border. They had many other distinguished guests. As they were far too numerous for him to welcome them all by name he would close by saying how delighted the Society was to have them, and express the hope that they would thoroughly enjoy the evening.

### Presentation of the "Victory" Medal

The President proceeded to say that, in conclusion, it fell to his lot to perform a singularly pleasant duty, in the presentation of the "Victory" medal. The medal was struck by the Central Society in 1918 to commemorate the victory of the Allies in the Great War, and was awarded annually to persons who had done yeoman service in the interests of the Society. This year the recipient was Mr. Thomas Dalling, M.R.C.V.S. (Loud applause.)

Mr. Dalling was an eminent research worker. His original researches into the diseases of sheep and poultry had greatly added to their knowledge, whilst his continuation of the work of Laidlaw and Dunkin on canine distemper, and his work on feline distemper had been of great value to the practitioner. Apart, however, from his scientific attainments, Mr. Dalling was a kind and helpful man, most modest, yet at the same time always ready to give sound and helpful advice when called upon to do so. (Hear, hear.) He was always ready and willing to give the "Central" the advantage of his knowledge, for he had, on a number of occasions during the past few years, presented excellent papers to them. There could be no person more worthy to receive the award than Mr. Dalling, and he looked upon it as a great personal privilege to be afforded the honour of presenting it to him. (Loud applause.)

Mr. T. Dalling, in acknowledgment, observed that in reply to the President's very kind

remarks, he desired to say how deeply he appreciated the honour which the Central Veterinary Society had conferred upon him by awarding him the "Victory" medal for 1936. When he thought of the illustrious gentlemen who had been the recipients of that honour in the past, he was very conscious of the position he held that night. When their Hon. Secrteary informed him that the medal was to be given to him this year he, naturally, asked himself why that famous Society should so honour him, and he began to think on what he had done to deserve it. True, he had been a Fellow of the Society for a number of years and had been privileged to present several papers for discussion. But that alone could hardly have influenced the decision, so he came to the conclusion that the Society must regard his feeble efforts for the advancement of the veterinary profession as in some measure satisfactory and that the Fellows had faith in him. This, again, made him think and he became quite afraid, for he realised to the full how very little he had really been able to do and how many opportunities he had missed of doing much more. He resolved to try to allow no reasonable opportunity to pass in the future, but that resolution made him more afraid, because we were all so very human; we fell so short of our ideals. However, be that as it might, all he could say was that he should endeavour to justify that trust and faith they had in him to the best of his ability.

The Hon. Secretary had hinted to him that speeches that night should be cut to a minimum and he did not intend to be the exception in that respect, but he could not let that opportunity pass without making a reference to research work by members of the veterinary profession.

"As you know, Sir" (proceeded Mr. Dalling), "since I left the Dick College as a full-blown M.R.C.V.S. over 20 years ago, I have had some experience in most of the spheres of activity of a veterinary surgeon. During the past 14 years, however, my work has consisted to a considerable extent in attempting to investigate the causes and prevention of some of the diseases which affect animals in this country, and because of the benefits I have derived from the former experiences I hold that every man contemplating research work should have had a considerable amount of practical experience in the various duties of a veterinary surgeon. We have seen great changes in research. When I first entered the laboratory with my respected chief, the late Professor Gaiger, in Glasgow, it was one's ambition to tackle almost everything and to exclude from the study of diseases in animals anyone but a veterinary surgeon. I am afraid that even to-day some of us have still the same feeling. But we have lived and learned. I am the last person to cast any aspersions on the ability of members of the veterinary profession to deal with their own problems, but as time has gone on I have seen the wisdom of making use of the knowledge accruing from the researches of workers in other branches of science. Despite this, however, I am still firmly convinced that veterinary surgeons are the workers most suited to the carrying out of the intricate details of research as applied to animal life. By all means we welcome all the assistance we can get from any branch of science and we are only too anxious to collaborate to the fullest degree, but in the special application of research to diseases of animals the trained veterinary surgeon is the only person who is in the position to carry out the necessary work.

"We are told, however, that there do not exist to-day the men in our profession for such work and it has been suggested that the profession is not attracting the type of man to whom research work appeals and, further, it has even been suggested that we should import for research work men and women from other professions. While I cannot subscribe entirely to these views, it is of interest to ask ourselves why this impression should have been created. It is true that there has been a dearth of research workers in the profession in the past, but I do feel that without flattering ourselves we can boast of the accomplishment of much of importance, showing that the profession does contain the necessary type of worker.

"An important body intimately concerned with the welfare of animal life in the country offered scholarships with which to attract veterinary surgeons to engage in research work. A public statement was made a few days ago to the effect that these scholarships were not being taken up and it was inferred that the young men in the profession were not inclined for research work. I cannot believe this and I would suggest that there are two reasons for the state of affairs regarding the scholarships.

"Firstly, the value of the scholarship. Many of us can remember vividly the time when a research worker was a man who lived for his work and for nothing else. He had no other interests outside his work. Actual money meant little to him provided he received sufficient to ensure that he had enough for food, some sort of clothing and a place wherein to dwell when he could be torn away from his work. This has largely changed now and the research worker is a more rational being who lives a more or less normal life, notwithstanding which he gets through much work! He naturally studies finance, and though he may have the aptitude for research work, when he looks round and sees his fellow students stepping into well-paid posts, the amount of money paid in the scholarship becomes an important item, especially as

he may easily be at a stage of his life when money is a particularly important item.

"Secondly, suppose the young veterinary surgeon accepts the scholarship, studies for the necessary number of years and becomes an efficient research worker in some branch of animal disease—what are his prospects for the future? Are there posts in research institutes for him, and if he obtains a post how far will he go in the future? Every young man must have these thoughts and when he looks round and makes enquiries he might easily come to the conclusion that, at the present time at least, there seems to be little prospect for the trained veterinary research worker.

"Considering these points I do not feel surprised that scholarships are not taken up by young veterinary surgeons. Make the value of the scholarships as good as that offered in other spheres of veterinary work and ensure that trained men will receive posts and subsequent promotion, and I do not think there will be the slightest need to look further than our own profession for the men suitable for the carrying out of the necessary research work into animal disease and husbandry. In a country like this in which animal husbandry is of such importance, the opportunities must be forthcoming for the carrying out of more and more research work and the bulk of it must be done by the veterinary profession."

Mr. Dalling concluded by reiterating his thanks to the President and the Central Veterinary Society for the great honour they had conferred on him that night, and added an expression of his gratitude for the trust they had in him.

During the evening Miss Doreen Gilmore and Mr. Fred Gwyn entertained the company most acceptably, while music for the dinner and subsequent dance, which continued until 2 a.m., was very capably rendered by Jack Anderson and his championship cup band.

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# SOUTHERN COUNTIES VETERINARY SOCIETY*

## MEETING AT ALDERSHOT

A meeting of the above Society was held on September 29th, 1936, at the Royal Army Veterinary School, Aldershot, in response to the kind invitation of the President, Colonel W. H. Walker, *D.S.O., O.B.E.*, and members of the Aldershot Army Veterinary Association.

Before the joint meeting, a short business meeting of the Society was held. The President, Mr. J. F. D. Tutt, F.R.C.V.S., was unable to attend and the Chair was taken by Mr. F. Beckett, F.R.C.V.S., a Vice-President. Also participating in the business meeting were Messrs. Barron, Begg, McLauchlan, Milligan and the Hon. Secretary. Dr. Jordan, Captain Fox, Messrs. Chipperfield and Skinner attended as visitors.

The minutes of the previous meeting had been published and were taken as read. Apologies for inability to attend were announced from Mr. J. F. D. Tutt, Miss Cust, Sir F. Hobday, Major Martin, Messrs G. P. Male, R. E. Klyne, H. C. Rockett and J. B. White.

*Membership.*—Mr. K. G. Morgan, M.R.C.V.S., of Southampton, was unanimously elected to Fellowship, and the nomination of Major E. Wallace, of Salisbury, proposed by Mr. H. C. Rockett and seconded by Mr. G. W. Begg, was announced.

*Obituary.*—Sympathetic reference was made to the death of an old and valued Fellow of the Society, Mr. George Parr.

*N.V.M.A. Congress, 1937.*—Mr. G. W. Begg raised the question of the decision of the N.V.M.A. to hold the Congress at Bournemouth next year. Many suggestions were made and discussed by all those present. The Secretary was instructed as to the action to be taken, and regarding the next meeting of the Society.

This completed the business.

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## Joint Meeting of the Southern Counties Veterinary Society and the Aldershot Army Veterinary Association*

Following the meeting of the Southern Counties Veterinary Society the proceedings of which are reported above, a joint meeting took place with the Aldershot Army Veterinary Association.

There were present Messrs. F. Beckett, J. D. McLauchlan, W. Milligan, N. S. Barron, G. W. Begg, H. S. Caldwell, T. A. R. Chipperfield, H. H. Skinner, R. de Bruyn; Doctors Ruth Allcroft, William Allcroft, H. H. Green and L. Jordan; Mrs. K. H. Everett; Major-General J. J. B. Tapley; Colonels A. G. Todd, W. H. Walker, H. J. Holness and J. O. Andrews; Lieut.-Colonels Greenfield and Tillyard; Majors Lewis, Williamson, Pryer, Bamford, Knowles, Oxspring, Heane, Gillmor, and Leigh; Captains J. Fox, Nicholson, Porter, Ralston, G. S. Walker, Coulden, and Shunassi Wahab (Iraq Army Veterinary Services), Lieutenants Barlow, Trevor, and Stewart.

The proceedings began with an address of welcome to the visitors from the Southern Counties by Colonel W. H. Walker, *D.S.O., O.B.E.*, President of the Aldershot Army Veterinary Association.

Colonel Walker said: This is an occasion on which I can refer, and with pride, to the largest gathering of officers of the R.A.V.C. and their professional confrères. I allude to the Great War. In August, 1914, the Regular, Special Reserve, Territorial Force and Reserve

*Received for publication October 12th, 1936.

*Received for publication November 16th, 1936.

of Officers of the Corps numbered 362, to which number we added some 1,000 veterinary surgeons who answered the call during the War, not including many part-time helpers—a very large number, bearing in mind the total number of the profession on the Register and the importance of others remaining in their permanent occupations.

Fifty-eight members of our profession gave their lives to the Country during the War. Other ranks R.A.V.C. increased from 322 to thousands; the maximum number employed at any one time was 27,950.

Army animals in France reached their peak at about 450,000. Adding to these the large number of all animals employed in other theatres of war and by our enemies, they make a total which, in these days of mechanisation of the world, seems incredible.

Mechanisation of the large armies of the world is imperative owing to the ever-decreasing number of animals constituting war reserves. With advances in civilisation and science war becomes increasingly diabolical and barbaric. By comparison one cannot but admire the fighting methods, valour and chivalry of the so-called uncivilised races and our own in the dim ages. Those of us who remember the horrors and suffering of animals in the Great War certainly do not wish to see them exposed to the great additional horrors of future wars. As animal lovers we welcome the thought of their release. Fast fading are the days when animals will participate in war and veterinary surgeons take the field in their professional capacity.

Happily, we still have other fields in which to conquer—the control and prevention of disease and animal suffering.

I should like to refer to one form of suffering which I foresee in the future, namely, the effects of gas used by an enemy on the peoples and animals of countries attacked by aircraft and gas. The question of anti-gas protection and treatment of animals affected opens up a big and important field of thought for us as a profession, both from a humanitarian and economic point of view, for our animal strength in the United Kingdom in war would be of inestimable value. The following figures are of interest. In June, 1936, at an approximate estimate, the numbers of horses, cattle, sheep and pigs, and their values were:—

*Estimated value and number of livestock on farms in England and Wales at 4th June, 1935.*

| | Number. | Value. |
|---|---|---|
| Cattle ... | 6,541,144 ... | £81,850,000 |
| Sheep ... | 16,477,000 ... | £22,160,000 |
| Pigs ... | 3,813,373 ... | £8,920,000 |
| Horses ... | No figures available. | |

It is my fervent hope that the central and local authorities in our Empire, assisted by us as a profession, will be alive to such dangers and take such steps as are possible to guard against them.

On behalf of the A.A.V.A. I extend to the Acting President and members of the Southern Counties Veterinary Society and our other visitors present to-day, a hearty welcome in our midst and I hope that our meeting will be productive of continued good fellowship and learning. (Applause.)

*Paper.*—On the conclusion of his address Colonel Walker called on Major G. E. Oxspring to deliver his paper on Veterinary Radiology and asked Mr. F. Beckett to take the Chair in the unavoidable absence of Mr. J. F. D. Tutt, President of the Southern Counties Veterinary Society.

Major Oxspring's paper, which is published at the commencement of this issue of the *Veterinary Record*, was a masterly and comprehensive review of the subject and will constitute a valuable work of reference.

Many photographs were exhibited, while demonstrations of the radiography of a horse's foot, the technique of removing the navicular bone and bursa—carried out in a very few minutes by expert dissectors—and Army veterinary equipment and laboratory specimens, were other interesting items in a most enjoyable programme.

Tea was then taken and much appreciated by the large gathering.

*Votes of Thanks.*—The Chairman, Mr. Beckett, spoke for the members and visitors in thanking Colonel Walker and the Aldershot Army Veterinary Association for their kindness and hospitality, Major Oxspring for having given them a masterly paper on a fascinating subject, and Major Pryer for his work in organising the very enjoyable and successful meeting.

Colonel Walker replied suitably and the meeting terminated at 6.30 p.m.

H. S. Caldwell, *Hon. Secretary*,
Southern Counties Veterinary Society.

| | England. | Wales. | Scotland. | Northern Ireland. | Total. |
|---|---|---|---|---|---|
| Horses* ... ... ... ... | 745,562 | 119,041 | 147,000 | 90,821 | 1,102,424 |
| Cattle ... ... ... ... | 5,692,086 | 841,839 | 1,313,300 | 769,663 | 8,616,888 |
| Sheep ... ... ... ... | 12,284,879 | 4,345,578 | 7,570,000 | 834,754 | 25,035,211 |
| Pigs ... ... ... ... | 3,545,795 | 255,330 | 236,400 | 521,255 | 4,558,780 |

*Figures for Great Britain are the total number of horses on agricultural holdings: for Northern Ireland, those used for agriculture and unbroken horses only.

## NORTH OF ENGLAND V.M.A.*

### NORTHALLERTON VISITED

A meeting of this division was held at the County Hall, Northallerton, on Friday, October 2nd, 1936, when the Chair was occupied by the President, Mr. W. Lyle Stewart, and the attendance book was signed by a representative gathering of members and visitors. Apologies for absence were received from a number of members who were unable to attend.

The minutes of the preceding meeting, having been published in the *Veterinary Record*, were taken as read and approved.

Election of new member: Mr. J. P. Pickering, Hexham, was unanimously elected a member of the Division.

Nominations: Mr. R. W. Bowman, Ministry of Agriculture, and Mr. G. S. Beattie, Durham County Council, were nominated for election.

A discussion took place as to the form of meeting to be held in December, and it was agreed to invite Dr. H. H. Green, of the Ministry of Agriculture Laboratory, and Mr. J. R. Barker, of Hereford, to address the meeting on the biochemical and clinical aspects, respectively, of milk fever, lactation tetany, and the pregnancy toxaemias.

Prior to the meeting the members, accompanied by ladies, had visited the Cow and Gate Factory, Northallerton, where they had been met by the manager and the chief chemist, who had conducted the party round the factory, and explained the processes to which the milk, coming from many distant sources, was subjected during manufacture. At the conclusion of the visit these gentlemen were warmly thanked by the President on behalf of the members.

J. R. Rider, *Hon. Secretary.*

*Received for publication November 18th, 1936.

"The prospect of the enactment in the near future of a law withdrawing the licence to practise medicine from all doctors on attaining the age of 65 has generated quite a lively correspondence in the Parisian medical press," observes *The Lancet*. "In the *Presse Médicale* for September 5th a correspondent recalls the experiences of Dupuytren on a visit to London where he was fêted in the grand manner by his English colleagues. One of his hosts was Astley Cooper, living at the time in retirement at his country seat. Here he entertained Dupuytren, whose raptures over the magnificent trees in his host's park evoked from the latter: "Yes, they are certainly fine. Every morning I examine them to decide which I shall choose to hang myself from. In London I should have been dead of fatigue; here I shall die of boredom." Whereupon Dupuytren urged his host to return to London. Cooper did so, and remained in harness till his death many years later. Impressed by this experience, Dupuytren used often to say that he would stick to his guns to the last, and that when he could no longer walk to his patients, he would be carried to them."

## ROYAL VETERINARY COLLEGE MEDICAL ASSOCIATION

### CENTENARY CELEBRATION AT CAMDEN TOWN

On Thursday, November 5th, 1936, a large and enthusiastic audience gathered at the Royal Veterinary College to celebrate what is surely a unique occasion in the annals of veterinary science, namely, the centenary of a Veterinary College Medical Association.

A body which can survive 100 years and still retain its youthful spirit must be founded on a good cause and its members be loyal and progressive. This statement must especially apply to the R.V.C.M.A.—there is not long certainty of personal service amongst its members, for the student population of an institution is of necessity an ever-changing one. In spite of these difficulties, there can be no doubt in the minds of any who were present on November 5th that the Medical Association has attained the Utopia of virile and everlasting life.

An excellent programme had been arranged; order and time was most efficiently kept throughout the proceedings, thanks to the courtesy and tact displayed by those in charge.

The celebration was officially opened at 9.15 a.m. by the Principal, Sir Frederick Hobday.

Sir Frederick, in the course of a concise speech, thanked the Association for the honour of being asked to open the proceedings of the Centenary Celebration of the Royal Veterinary College Medical Association. In doing so, he congratulated the executive, especially the President and Secretary, upon the well-arranged programme—not only in the selection of the titles and of the subjects, but in the excellent response whereby they had obtained such a brilliant bevy of essayists and demonstrators, all of whom, on behalf of the Association, he was asked to welcome there that day, and from each of whom individually he was sure they would all learn much. The Editor of the College Student Magazine would have his task of providing suitable copy for that year's issue considerably lightened as compared with his colleagues of previous years; and the College Magazine would undoubtedly be preserved as a text book for examination purposes.

The occasion upon which they met that day was the Centenary Celebration of the College Medical Association, which came into being in 1836, having amongst its original members practitioners as well as students; its officers consisting of a Patron, President, twelve Vice-Presidents, a Treasurer, Secretary and Librarian. Professor Coleman was the first Patron and Professor Sewell its first President. The Vice-Presidents were equally divided

between students and practitioners. Professor Spooner was elected Treasurer and Mr. Morton, Secretary and Librarian. This was, at that time, a very strong combination of energy and talent, and the fee for membership of the Association was a guinea. A member was fined for non-attendance, unless living at a distance of five miles from the College or engaged in practice—sixpence if not present at seven o'clock and another sixpence if not present at nine, or when his name was called over. A member called to order twice during the evening by the President was fined 2s. 6d., these fines to be paid on the first evening subsequent to that on which they were incurred—on penalty of expulsion if not paid after being three times asked for.

Although much water had flowed under the bridge since the formation of that Society, the objects and methods of procedure were still much the same as they were then, with the exception that in the present day it was entirely a student society. Of the good which it did and the benefits derived socially and by interchange of professional opinions, the student members could best speak; and as one who had known the College intimately for many years he could testify to its virility and its value.

By a happy combination of circumstances—brought about by the friendly relationship existing between the two Societies—the Central Division of the National Veterinary Medical Association celebrated its annual dinner and dance on the same evening, and it was good to learn that the student body was invited to participate in those festivities. That Society was young compared with theirs and although there was an idea that its source of origin was the College Medical Association, and several of the College Professors—Turner, Pritchard and Axe—were amongst its original members, this was not correct as it owed its formation largely to the forceful energy and initiative of Dr. Fleming and Mr. George Armatage. Dr. Fleming was the first President and Mr. Armatage the first Secretary, and the first meeting was held at Red Lion Square. The history of that Society would, however, doubtless be dealt with in detail by Professor Wright, the President, in the proceedings of that evening—and he (Sir Frederick) must not poach on his preserves.

That day was a great day for the London College—its guests were not confined to students nor yet to those who claimed the buildings as their Alma Mater—but he was instructed to welcome all and especially their practitioner guests, and without being invidious in picking out any special one amongst those he saw there that morning, he would like to mention Major Leeds Gooch, who carried his 76 years so well, and who had come all the way from Lincolnshire to be with them that day.

The pabulum which had been prepared was well mixed to suit all tastes and the time was due to commence the first part of the programme—an exceedingly well-thought-out idea of whole-time examples—for they had pithy 15-minute papers from a Municipal, Colonial, County and Ministry Veterinary Officer respectively. Parasites and bacilli each took their place, and the horse, cow and sheep were all catered for—and even the fowl was not forgotten.

Concluding, Sir Frederick said that his allotted time was now completed and before proceeding to the next item on the programme he again expressed his thanks for the honour they had done him in asking him to open the proceedings, which he wished all the success they deserved.

Throughout the day, an appreciative audience gave themselves up to the enjoyment of a series of lectures and demonstrations which would have done credit to many larger bodies. It is hoped to publish this valuable material in a later issue of the *Veterinary Record*.

Luncheon was provided by the Association for official guests, and those who had given assistance during the day. At the luncheon, Mr. Jack Willett, the President of the R.C.V.S., gave expression to the thanks of the visitors to all who had helped to make the day a success.

Mr. J. W. H. Holmes, the President, and his council of students are to be complimented on the programme they arranged, and special mention must be made of Mr. F. W. A. Smith, the Assistant Honorary Secretary, upon whom much of the work of organisation devolved.

Amongst the many visitors present were: Members of the College staff and General Tapley, Major Slocock, Major Townsend, Captain Barry, Colonel Burridge, Major Mullany; Dr. Green, Dr. Baylis, of the British Museum, and Dr. Bullock; Messrs. Gooch, Steel Bodger, H. D. Jones, Halfhead, Hudson, Thompson, Phillips, Webber, Hughes, W. S. King, Eaton, Gillard, W. K. Townson, Turner, Pugh, O'Brien; Misses Hickman, Sanderson, Hernaman-Johnson, and Saunders.

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**The fresh boom in Clydesdale breeding has been bringing in a large number of new members to the Clydesdale Horse Society: no fewer than 112 were elected at the last-held meeting of the Council. Few horse societies can boast of such figures as these, more especially within an area such as that covered by this society. At this meeting correspondence with the National Horse Association regarding the Minister of Transport's proposals on the subject of horse-drawn traffic on the streets of London and other large cities, was read and a strong protest sent by the Society on the matter recorded.**

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**A flash of lightning killed seven sheep in a field at Llantrithyd, near Cardiff. They were found dead in line with a barbed wire fence.**

## In Parliament

The following questions and answers have been recorded in the House of Commons recently:—

### Surplus Horses and Mules

Mr. Radford asked the Secretary of State for War whether his attention has been drawn to the pitiable state of the survivors of the British Army horses and mules which were sold in Belgium in 1919; and whether, following similar revelations with regard to those which were sold in Egypt about the same time, he will give instructions that in future no such sales shall be made abroad, but that all British Army horses and other transport animals, no longer required for service, shall either be brought back to Britain or be painlessly destroyed by our Army authorities in the country where they may be?

Sir V. Warrender: Yes, Sir, my right hon. Friend's attention has been drawn to this matter. It has for some time been the policy of the Army Council that all horses and transport animals which become surplus to military requirements while abroad shall be either brought back to the United Kingdom or destroyed under military supervision, and instructions to this effect have been issued. None will be sold to local inhabitants.

Mr. Radford: While thanking my hon. Friend for his answer, may I ask him to convey the assurance to his right hon. Friend that his decision will give widespread satisfaction throughout the country?

. . . . .

### Poultry Diseases

Mr. Price asked the Minister of Agriculture whether he is aware that there has been a serious reduction in the poultry flocks in the country; to what extent is this due to lowered vitality, facilitating spread of disease; and whether he is taking steps to deal with the situation?

Mr. W. S. Morrison: I am aware that the poultry population has declined during the past two years, but I cannot say to what extent this is due to the causes mentioned by the hon. Member. The whole question of poultry mortality is being reviewed by a committee set up by the Secretary of State for Scotland and myself. In addition, the Agricultural Research Council is paying special attention to research into poultry diseases, particularly fowl paralysis and coccidiosis, and, in collaboration with the Ministry, is taking such steps as are practicable to expedite investigation.

### Milk (Pasteurisation)

Brigadier-General Clifton Brown asked the Minister of Health whether he has considered the report sent him from the Institute for Dairying who found that a disturbingly high proportion of pasteurising plants, both in London and elsewhere, were producing improperly pasteurised milk; and what steps he is taking to make pasteurisation effective?

Sir K. Wood: I am aware of the statements made in the report referred to, which relates to the period ended September 30th, 1935. With regard to the second part of the question, I would refer my hon. and gallant Friend to the answer given to my hon. Friend the Member for Hitchin (Sir A. Wilson) on this subject on November 19th, of which I am sending him a copy.

Brigadier-General Brown: Is it not time the Minister took some more drastic measures against these inefficient pasteurisation plants, in view of the fact that 37 per cent. of the samples tested were found to give a positive result and 90 samples taken from milk supplied to school children were contaminated?

Captain Heilgers: Is it not a fact that partly pasteurised milk is infinitely more dangerous to the public health than ordinary clean milk?

Sir K. Wood: I could not now make a reply on that general matter, but the difficulty has chiefly arisen through these plants not being in proper working order.

Mr. T. Williams: In view of the experience of Bournemouth and of other similar experiences throughout the country, does not the right hon. Gentleman think it time that the Government acted on the lines suggested by the research committee?

Sir K. Wood: I made a reply on that matter last week.

Major Colfox: Is is not a fact that the Bournemouth epidemic had nothing whatever to do with milk?

Sir K. Wood: No, I must contradict that at once.

. . . . .

### Tuberculous Meat

Mr. Oliver asked the Minister of Health whether he has considered the resolution from the Heanor Urban District Council with respect to extending the law to prohibit the sale of any carcases of animals intended for human food found to be affected with localised tuberculosis from which the affected parts have been removed and destroyed; whether he has received any similar requests from other local authorities; and whether he will take an early opportunity to give effect to this request on the part of the local authorities?

Mr. R. S. Hudson: My right hon. Friend has considered the resolution referred to, but he has received very few representations from other local authorities on this subject. A memorandum issued by my department defines in detail the limits within which the meat of animals found to be affected with localised tuberculosis may be passed for human consumption. These criteria were adopted upon the recommendation of an expert committee, and as at present advised my right hon. Friend does not see any sufficient reason to depart from them.

## CAMBRIDGE UNIVERSITY FARM

A scheme for the rehabilitation of the buildings of the University Farm, Cambridge, and for the erection of new buildings, has been under consideration for some time. It was first proposed as a part of a scheme for the extension of the School of Agriculture and of several of the Science Departments of the University, which was promoted and liberally supported by the International Education Board (Rockefeller Foundation), and was also assisted by grants of £50,000 each from the Treasury and the Empire Marketing Board. Sanction has now been given for a grant of £4,463 for the erection of new experimental piggeries together with the creation of a maintenance fund.

It is anticipated that the rebuilding scheme on the farm will cost, in all, some £12,000.

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Members of the Royal Counties Agricultural Society have rejected the proposal that they should amalgamate with the Bath and West and Southern Counties Society.

# Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

## Diary of Events

Dec. 5th.—Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne, 2.15 p.m.

Dec. 7th.—Meeting of the Finance and General Purposes Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 10.30 a.m.

Dec. 7th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 4 p.m.

Dec. 7th.—R.C.V.S. Oral Examinations commence in Dublin.

Dec. 8th.—Annual General Meeting of the North Midland Division, N.V.M.A., at Sheffield, 4 p.m.

Dec. 9th.—Annual General Meeting of the Scottish Metropolitan Division, N.V.M.A., at Edinburgh, 2.30 p.m.

Dec. 11th.—Meeting of the Southern Counties Division, N.V.M.A., at Southampton, 2.30 p.m.

1937

Jan. 8th.—R.C.V.S. Council Meetings.

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## PERSONAL

*Marriage.*—Chesney-Marshall. On November 29th at St. Andrew's Church, Holborn Circus, Richard Walter Leonard Chesney to Evelyn Marshall, daughter of Mrs. Alice Marshall, 2, Dawlish Mansions, Gray's Inn Road, London.

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*Presentation to Mr. Alfred Bate,* M.R.C.V.S.—Over 500 friends participated in a presentation of plate which was made to Mr. Alfred Bate, M.R.C.V.S., at the Ellesmere Town Hall, on November 24th, on his retirement after over 50 years' service in the district.

In making the presentation, Major Mainwaring, of Oteley, made reference to the genuine regret which everyone felt on the departure of Mr. Bate. He extolled the excellence of his professional work and his active connection with every good movement in the district. Speaker after speaker mentioned some pleasing attribute or another or some kind or thoughtful action he had done. Mrs. Mainwaring instanced Mr. Bate having found time to come to give lectures to the Pony Club. Captain Jebb recalled his inestimable assistance with the old volunteers and his outstanding skill as a marksman. Others had found in him a trusty comrade, a good Churchman, and a genial friend.

## REORGANISATION COMMISSION FOR MILK

### Principal Recommendations of the Report

The establishment of a permanent milk commission which would consist of five members appointed by the Minister of Agriculture and the Secretary of State for Scotland, after consultation with the Departments responsible for other interests, is recommended by the Reorganisation Commission for Milk for Great Britain, whose report, which will receive extended notice in an early issue of this journal, was issued on November 27th as No. 44 of the series of Orange Books on agricultural marketing (Stationery Office, Price 1s.). The chief duties of the permanent commission would be to assist the Government by planning a milk production policy adjusted to the nation's needs and by framing measures designed to increase the consumption of liquid milk.

The Reorganisation Commission express the view that the existing schemes have been of great value to milk producers and to agriculture as a whole, that distributors as a body have benefited, and that manufacturers of milk products have not been adversely affected.

Following are the principal recommendations of the commission:—

The establishment of a permanent milk commission.

The English Milk Marketing Board should be retained in much the same form as at present. There should be a single board for the whole of Scotland.

The establishment of a standing co-ordination committee consisting of the two boards and of Northern Ireland.

That producers' prices and buying prices prescribed by the boards should be determined by the commission. The liquid milk market should be relieved of the burden of loss sustained on the sale of surplus milk for manufacture.

In order to raise the quality of milk, it is recommended that a system of standard grades covering all sales should be established, and that the minimum standard of milk permitted to be sold for liquid consumption should gradually be raised. Each producer should be paid for his milk according to its quality, whether or not all milk of the higher grades could be sold at higher prices. Recommendations are also made with regard to level delivery and other special service premiums, and the assessment of producer-retailers' contributions to the marketing Boards.

Retail prices should cease to be regulated by the terms of the producers' contracts and should be left to be fixed by competition.

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## FOOT-AND-MOUTH DISEASE

The existence of foot-and-mouth disease was confirmed on Friday of last week among cattle at Foolow, Eyam, Sheffield, and at Sealand, Cheshire. The area subject to restrictions in the movement of animals near Sealand lies in the counties of Flint and Chester. In view of the outbreak at Foolow it has been necessary to extend the area already subject to restrictions on account of the outbreak at Bosby, Macclesfield, on November 26th, to include an area approximately 15 miles round Foolow. The revised area subject to restrictions lies in the counties of Chester, Stafford, Derby, and the West Riding of Yorkshire.

On Monday the Ministry of Agriculture made the following announcement:—

"The existence of foot-and-mouth disease at East Retford, Nottingham, was confirmed to-day.

An order has been issued, taking immediate effect, imposing the usual prohibition of movement of animals out of, and regulation of the movement of animals within, an area extending approximately 15 miles from the infected premises.

"The area lies in the counties of Derby and Nottingham, in the Lindsey and Kesteven Divisions of Lincolnshire, and in the West Riding of Yorkshire. The area adjoins the existing Cheshire and Derbyshire infected area, which is a separate area."

As a result of the new outbreak of foot-and-mouth disease just outside the city there will be no Christmas auction markets at Chester. Hunting will also be at a standstill and five packs will be affected.

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## ARMY VETERINARY SERVICE

### Movements of Officers

Major C. W. Heane proceeded from Aldershot to Larkhill for duty on October 12th, in relief of Major R. M. Bamford, O.B.E., who proceeded to the experimental establishment at Porton for full-time duty on October 15th.

Lieutenant K. I. Barlow sailed for India on October 16th for a tour of duty abroad.

Major D. A. Gillmor was posted from Aldershot to Woolwich on October 26th, for the purpose of assuming duty as Officer Commanding R.A.V.C. Depôt.

Colonel J. O. Andrews, D.S.O., sailed for India on October 28th for a tour of duty abroad.

Major K. S. Simpson sailed for Malta on November 14th for a tour of duty abroad.

Majors G. V. Golding, F. J. Weir, and J. Southall, sailed for India on November 24th for a tour of duty abroad.

Captain A. P. MacDonald, who is at present on leave ex-India, joins at Arborfield Cross on December 15th for duty at the Remount Depôt.

### London Gazette—War Office—Territorial Army

Nov. 27th.—Supernumerary for Service with O.T.C. R. (Dick) Vet. Coll. Contgt.—Lt. S. T. Harriss to have seny. Jan. 30th, 1935 (Nov. 28th).

### Territorial Army Reserve of Officers

Maj. and Bt. Lt.-Col. J. A. Dixon, T.D., having attained the age limit retires and retains his rank, with permission to wear the prescribed uniform (Nov. 28th).

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## DIPLOMA OF PUBLIC HEALTH

Sir George Newman, introducing to the General Medical Council the report of the Public Health Committee, which embodied proposals for revision of the rules adopted in 1930 to govern the Diploma of Public Health, said that there had been, since that date, steady progress in the means and method available in this subject, and the scope of public health services had widened owing to the advance of knowledge and practice and the enactment of new or amending legislation, notably the Local Government Act, 1929.

The draft resolutions and rules proposed that candidates should be admitted to the examination if they possessed a "qualification in medicine, surgery, and midwifery." Formerly they could only be admitted if they possessed a "registerable" qualification, *i.e.*, one which could be admitted as grounds for registration in the Medical Register. This amendment, if adopted, would throw open the diploma to many practitioners who were at present ineligible. The curriculum had been altered by the omission from it of instruction in analytical chemistry, radiology, and electrology. The first-named subject, said Sir George Newman, had for some time been a source of irritation to teachers and students alike, as the modern medical officer of health delegated all analytical work to a chemist.

Five new subjects had been added to the theoretical syllabus: industrial hygiene, hospital administration, house planning and sanitary construction, genetics, and mental hygiene. To the practical work had been added hospital services and arrangements for dealing with mental disorder and deficiency. These new subjects aroused some discussion in the council, as members felt they needed further definition. As, however, the draft rules are to be circulated to the licensing bodies and the institutions approved for instruction for their observations, the discussion of detail was postponed until those observations should be available.

Sir Henry Dale, Chairman of the Pharmacopoeia Committee, reported that 42,000 copies of the "British Pharmacopoeia," 1932, had already been sold, and said that the next edition would, it was hoped, be published in 1941.

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## CENSUS OF LIVESTOCK

In order to obtain further information concerning probable supplies of home-produced beef, mutton and pigmeat during the next six months, the Ministry of Agriculture and Fisheries is taking a special winter census of cattle, sheep and pigs on farms in England and Wales on December 4th. A similar special census was taken a year ago, but this year farmers are being asked to give particulars separately in respect of cattle in, or intended for, the dairy herd, and those intended for beef.

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## ROYAL (DICK) COLLEGE APPEAL

At a meeting of the Lanarkshire Poultry Association, Captain D. L. MacMillan, who was recently appointed organiser of the Royal (Dick) Veterinary College Extension Fund, made an appeal on behalf of that fund. After giving a brief history of the College, and explaining how its accommodation was now totally inadequate, by reason of the growing numbers of students and the ever increasing demand for research in the livestock diseases, he intimated that a trophy would be awarded to the Poultry Association which collected the largest amount on behalf of the Fund from the area, the basis of award being calculated on the number of fowls returned under the Agricultural Census for that county. The Chairman, Mr. John Kerr, strongly supported Captain MacMillan's appeal, and hoped every poultry-keeper would subscribe to this most deserving cause.

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## FARM HORSES

The Import Duties Advisory Committee has decided not to recommend the imposition of a duty on imported horses, for which application was made by horse breeding societies and the National Farmers' Union. The Committee will, however, keep the position under review. "This decision was not unexpected," says the *Times*. "The majority of farmers have to buy horses for working the farms, and the prices that have been ruling for sound horses may be considered high enough to give the breeder a satisfactory profit. The rise in prices has attracted a considerable number of heavy horses from Belgium and other countries, and these

have been bought by farmers as well as by hauliers for town work. It is certainly desirable that the breeding of draught horses should be encouraged in this country, and the satisfactory prices now ruling are having this effect. The Ministry of Agriculture's returns show that more foals are being bred. The time may come when it is necessary to protect the home breeding industry, but as yet the increase in horse breeding at home has not made good the deficiency in numbers."

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## SCIENCE AND THE POULTRY INDUSTRY

The following note, reproduced from *Nature*, November 7th, will be read with interest by the veterinarian, contributed as it is by one who, though a layman, is both well-informed and possessed of the scientific outlook:—

"The claim of the poultry industry to rank as the third largest branch of British agriculture, when judged by the value of its output, will scarcely be questioned by the visitor to Blackpool for the recent meetings of the British Association. Over the greater part of the County Palatine through which he travelled, the fortunes of farming are based largely upon cows, poultry and pigs, mainly in the order given, whilst the more immediate hinterland of Blackpool is thickly studded with specialist poultry farms. On arrival he would not have been surprised, therefore, to find from his programme that two sections of the Association had thought it worth while to devote a whole afternoon to a joint session for the discussion of problems of the poultry industry, and that further, provision had been made for an external lecture at a rural centre, Poulton-le-Fylde, on the same subject.

"For this latter purpose no choice could have been happier than that of Mr. Percy A. Francis, the Poultry Commissioner of the Ministry of Agriculture, who combines unique opportunities of observing the progress of the application of the various sciences to the practice of poultry husbandry with a flair for the exposition in simple terms of his observations that is widely appreciated throughout the industry.

"Mr. Francis' survey of the applications of science to the poultry industry necessarily covered a wide field, since in no branch of livestock husbandry are the needs of scientific guidance so varied as in the poultry industry of to-day, with its systems ranging between the two extremes of the open pasture and the intensive 'battery.' At every stage—mating, incubation, rearing, laying, fattening—and in every phase of management—feeding, housing, hygiene, disease control—the keys to success have scientific wards, and the ultimate result is largely affected by the degree to which fundamental scientific postulates have been respected or ignored.

"In view of the popular conception of the farmer as being too slowly responsive to the aid of science, it will come as a surprise to many to learn that Mr. Francis is inclined to suggest that some part of the present troubles of the industry on its production side may be traceable to over-haste and ill-informed zeal on the part of the poultry farmer in the incorporation of scientific discoveries into his practice. That there is substance in this suggestion can scarcely be doubted. In the application of new ideas to the development and management of the animal, an immediate improvement can only be accepted as desirable if it is not offset by an ultimate disadvantage of more serious import. Where the animal is used as a breeder, this disadvantage may not be evident until the third or fourth generation or even later. With an animal that grows and multiplies slowly, like the bovine or the human being, the deterioration may indeed cover so long a period of years as to escape detection unless the most careful and prolonged records are kept; but with a species that grows and multiplies so rapidly as the fowl, the penalty is likely to fall more swiftly, and moreover to be far more widespread in its incidence.

"For any errors committed by the poultryman in this respect, the scientific investigator must accept a share of blame, in that all too often he has not made sufficiently clear to the layman that his new discovery, though the latest, is almost certainly not the last word on the subject, and therefore does not justify the poultryman in dissolving completely the partnership with Nature, which hitherto has helped to make good the defects of the combined knowledge of farmer and scientific adviser.

"Nowhere has the great advance in our knowledge of animal nutrition furnished by the discovery of vitamins and the study of mineral requirements been more strikingly exemplified than on the poultry farm; nowhere has the incompleteness of our extended knowledge been more clearly demonstrated.

"The major problem with which the industry on its production side is now faced is that of the rising rate of mortality amongst adult stock. There can be little doubt that this is in part only a manifestation of the general tendency for increasing loss to occur from diseases and other causes when a population is allowed to grow very rapidly without the coincident development of an efficient 'public health' service. The major causes must probably, however, be looked for in other directions, since the great increase in the poultry population between 1918 and 1928 was not accompanied by any serious rise of mortality. Some are inclined to look upon the present troubles of the industry as the harvest of seed sown in that earlier boom period, when possibly the industry expanded faster than its capacity to supply itself with sound breeding stock; others place the major blame upon excessive resort to 'intensive' methods—too much science! Still others find a partial explanation in the all too easy dissemination of stock from uncontrolled breeding centres. Wherever the cause may lie, be it in breeding, incubation, management, disease control, or any other part of the field of the poultryman's activities, the need for a combined attack upon the problem is now clamant. Practice alone is unlikely to prove capable of finding a solution; to the scientific investigator, a vast field of service is open in which the rewards, both to the individual and to the nation, are great and certain." C. C.

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## THE PRESERVATION OF SERUM

A recent *Lancet* annotation under the above heading reads as follows: "Most therapeutic sera are still preserved from bacterial contamination by the addition of tricresol, a disinfectant which though fully reliable has the disadvantage of being distinctly poisonous. Its effects are negligible when only small doses of serum are given, but one cannot escape the belief that when large volumes are given, especially by intravenous injection, the action of the tricresol in the serum must be placed on the debit side of what is usually in any case a rather complicated account. Where a serum has been shown actually to diminish the likelihood of recovery its ill effect has usually been attributed wholly to the large amount of foreign protein

introduced; but so far as we know there is nothing against the view that the preservative is partly responsible.

"There are many disinfectants which in a general way are much more efficient and less toxic, either relatively or absolutely, than tricresol, but it appears also to be universally true that the more powerful a disinfectant, the more varied is its action on different bacteria, so that although extremely dilute solutions suffice for some, others will resist concentrations many times greater. Unfortunately the preservation of serum, unlike some other purposes for which a disinfectant may be used, demands that the reagent used shall be capable of destroying any micro-organism whatever, and otherwise admirable disinfectants, active in dilutions so great as to constitute an ideal preservative, have been found to fail with some diphtheroid or mould which happens to possess what can only be looked upon as a freak degree of resistance to it. One way of overcoming such a drawback is to combine two disinfectants of different constitution, each of which, besides reinforcing the general action of the other, might be capable of filling occasional gaps in the capacity of the other, since peculiar insusceptibility to disinfectant action is often confined to a single class of disinfectant. A step has been taken in this direction by the work of C. R. Falk and S. P. Aplington (*Amer. Jour. Hyg.*, 1936, xxiv, 285), who have studied the effect of mixtures in different proportions of phenol and merthiolate on three different bacteria at three different temperatures and over a considerable number of time periods. Their general conclusion appears to be that this combination is a good one. Merthiolate is an example of a disinfectant active against most bacteria in extremely high dilution, and having certain chinks in its armour which alone prevent it from being ideal. Unfortunately, phenol, on the other hand, is even more poisonous, in proportion to its disinfectant power, than tricresol; but if the reduced proportion of phenol employed by Falk and Aplington could be altogether eliminated in favour of some less toxic substance equally capable of supplementing the action of merthiolate where necessary, these experiments might point the way to an important advance."

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On Saturday of last week, Sir Percy Jackson, Chairman of the Yorkshire Council of Agricultural Education, laid the foundation stone of the new institute which is being erected by the University of Leeds and the Yorks Council for Agricultural Education at Askham Bryan, York. The institute will be the biggest of its kind in the country. The estimated cost of £85,000 will be borne by the North, East and West Riding County Councils, and the educational side of the work will be controlled from the University of Leeds.

* * * * *

The Tail-Waggers' Club, which has done considerable work for canine charities since its inception in 1928, has handed to the Guide Dogs for the Blind Association a further sum of nearly £1,200 for the provision of guide dogs for some of the sightless men and women in Great Britain.

* * * * *

Probably the rarest of all hunting trophies—a full-grown fox of unblemished white from snout to brush—fell to the Percy Hunt at Brinkburn recently. The animal has been handed over for preservation to the Duke of Northumberland, who, with his mother, the Duchess, is a joint Master of the Hunt.

# Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

*The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.*

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## DUST DISEASES—PULMONARY LESIONS AND COUGHING IN PIGS

REPLY TO LETTER BY MR. H. ROBINSON, PRINCIPAL, MIDLAND AGRICULTURAL COLLEGE, LOUGHBOROUGH

TO THE EDITOR OF THE VETERINARY RECORD

Sir,—I have read in the "Notes and News" columns of the *Veterinary Record* of November 21st, with amazement, an abstract of a letter which had been previously published in the *Times*, of October 19th, by Mr. H. G. Robinson, Principal of the Midland Agricultural College, concerning an outbreak of coughing in pigs.

This publication raises a number of questions which must be answered. Not least is that in problems associated with animal diseases, why an authoritative source of information was not consulted. I refer to the fact that in this case "as a last resource" a member of the medical profession was consulted rather than a veterinarian. Whatever justification there may have been for the publication of this letter in the *Times* by Mr. Robinson, its appearance in the *Veterinary Record* might be the cause of misunderstanding on the part of practitioners and also pig breeders, regarding the pathogenicity of ordinary atmospheric dust.

I intend for convenience to quote passages from Dr. Berry's report; secondly, to summarise the present knowledge concerning the dust diseases in man; thirdly, to comment upon the same in animals and, fourthly, to point out the fallacies in Dr. Berry's statements. It is stated that "The changes in the lungs were very similar to the changes observed in human lungs in dust disease . . . thus further irritation is set up in a patchy way. This patchy inflammation could be clearly seen under the microscope and such areas being near the membranes covering the lungs (pleura) also produced a local pleurisy. This in turn causes the two membranes to stick together and when the animal is butchered the lung is found to be firmly bound to the chest wall . . . . The lung irritation produces further coughing and the sections show that the animal, by forced coughing, had further damaged the lung by overdistending the normal parts of the lungs. The opinion that the change in the lung of the pig was due to dust was inescapable and the only way of avoiding the trouble was to prevent the breathing of the dust by the moistening of the dry feed similar to wetting the floor in order to lay the dust."

*Dust diseases or pneumoconioses in man* [see any text-book on human pathology; for more detailed information, see the papers of Kettle (1924). *Brit. J. Exp. Path.* V. 158., Proc. Roy. Soc. Med. (1930-1) 24: 1., Hadfield and Garrod (1934.) Recent advances in Pathology.*] The long continued inhalation of certain irritant dusts may cause a *chronic* interstitial pneumonia known as pneumoconiosis the outcome of which is entirely dependent on the *silica* content of the dust. The two dangerous dust-diseases are silicosis and asbestosis. The former occurs

*See also International Conference on Silicosis. Johannesburg (1930.) Report by International Labour Office.

particularly in gold miners, but also in tin-miners, metal-grinders, stone-workers and sand-blasters. Asbestosis only occurs in factory workers dealing with this product and only a limited number of uncomplicated cases have been described. In both types the same sequence of changes occurs in the lungs although there may be some difference in the localisation of the lesions. The particles of dust are taken up by the bronchial mucosa by phagocytes and transported by the lymphatics into the stroma of the lungs; some may be drained into the regional lymph glands. In the lung stroma usually in association with intra-pulmonary lymphoid tissue a slow reactive proliferative process occurs with the production of a patchy or nodular fibrosis, but later by coalescence the lesions may become diffuse in type. An invariable bronchitis and emphysema helps to reduce the functional capacity of the lungs and the chief symptom is *dyspnoea*.

Silica may induce a necrosis and cavitation of the lung may result but usually in these cases tuberculosis is a concomitant disease; the presence of silica apparently favours the growth of the tubercle bacillus to a marked degree. Normally the silica content is never more than 0·2 per cent. of dried weight of the organ but in true silicosis the figure may be multiplied ten times or more. Anthracosis on the other hand, due to coal dust or carbon particles, is the commonest and the least harmful of the dust diseases and occurs chiefly in coal miners. This dust, however, is found in variable and often considerable amounts in every adult human lung at autopsy, particularly in the lungs of town dwellers. The presence of anthracotic dust does not cause irritation and only in a few cases does the lung show fibrosis. The harmless effect of coal dust is well recognised and, in fact, some workers have stated that it is beneficial, quoting in support of this statement the relatively lower incidence of tuberculosis in coal miners. The latter do suffer from pneumoconiosis but in these cases it has been proved not to be due to the coal dust but to the presence of silica; in such cases the miners worked in mill-stone regions. Further, in many cases before a definite diagnosis can be made an estimation of the amount of silica in the lungs is necessary.

With this information at our disposal it can be stated that these dust diseases play no part in the realm of the veterinary pathologist. (Rare cases of asbestososis have been described; see N. Schuster (1931.) *J. Path. and Bact.* **34**, 751, in which a case in a ten-year-old dog is described. This animal had lived *all* its life in an asbestos factory and had suffered severely from dyspnoea for *two* years.) In all adult animals a variable amount of anthracotic "pigment" will be found in the lungs on *post-mortem* but never to the same degree as in the human lung. Even in the case of town dogs which have lived for years in a dust-laden atmosphere no reaction in the lungs will ever be found. The dust, in such cases, is scattered throughout the lung substance giving it a greyish colour and the regional lymph glands are usually black in colour. Cooke (1935.) *J. Hygiene* **35**, 267, in his paper on silicosis mentions a case of a pit pony which had lived all its life (*17 years*) in the pit. Although silica was present in the lung in small amounts no fibrosis was found and the state of the lung compared favourably with the lungs of an average adult human town dweller! This lung was probably an example of anthracosis. It is seen, therefore, that the presence merely of the dust does not necessarily spell silicosis.

Regarding the report by Dr. Berry it would, therefore, appear that he was unaware of either recent work in connection with dust diseases in man or of the non-occurrence in domesticated animals. Although it is difficult to draw much definite information from his description of the lesions in the pigs' lungs it might appear that the animals were suffering from a fibrinous or purulent pleurisy with adhesions. This is a type of lesion which in animals and man is nearly always due to an infective agent (in man to the tubercle bacillus, the pneumococcus, and the streptococcus and in the case of the pig as a lesion in swine fever and occasionally to *B. suisepticus* infection, *B. pyogenes* (the so-called pleuritis apostemastosa) and to streptococci. It would be interesting to ascertain, therefore, how Dr. Berry concluded that an obviously acute exudative reaction, as he apparently means, could be caused by substances (dust?) which are notorious for the production of an insidious protracted chronic disease. Secondly and more important still, the amount of silica (the substance which we know now to be responsible for all dust diseases) in ordinary atmospheres is negligible and even in dusty atmospheres such as are to be found in cow byres, pig styes, etc., would never be sufficient to cause any lung lesions. If this were not so then 99 per cent. of our adult cattle and pig population would be now dead or moribund from dust disease, to say nothing of millions of our human population living in industrial areas. Thirdly, from the fact that Mr. Robinson mentions that the pigs in question were being fattened for bacon one might roughly assess the ages of the pigs at six months to one year. This is a period of time which renders it ludicrous to suppose that pulmonary lesions of any severity could be caused by dust even in the case of the most dangerous dust, namely, silica. The period of exposure necessary in man to cause disablement is uncertain but in all probability it takes many years. (Some idea of the course of the disease can be obtained in the fact that according to Strachan and Simpson (1930) International Conference on Silicosis, Johannesburg, Report by International Labour Office, the average expectation of life in man after the first clinical detection of the disease is about 14 years!) If not, such occupations as mentioned above would be such a hazard that workers would be difficult to obtain. In connection with this it is also relevant to note that all attempts to produce experimental silicosis in animals, even in specially constructed dusting chambers producing a heavy saturation of silica dust, have been unsuccessful because even the long periods of exposure have proved inadequate. For example, Willis and Brutsaert (1928.) *Amer. Rev. Tuberc.* **17**, 268, record that guinea-pigs exposed several times weekly to silica dust, over periods ranging from 18 to 31 months showed "little evidence of pulmonary fibrosis as one might expect."

From all of the above it appears justifiable to draw the following conclusions from Mr. Robinson's letter regarding coughing in pigs. (*a*) That it is highly improbable that the coughing was due to a true pneumoconiosis (silicosis) and if pigment was present in the lungs it could have only been in the nature of the anthracotic type, notoriously known to be harmless; (*b*) From the description of the lesions by Dr. Berry it appears likely that the lung and pleural lesions were caused by some bacterial agent, a common enough finding in pigs; (*c*) The reason for the improvement of the pigs after damping the food remains obscure but the same beneficial result might easily have occurred whether X or Y

factors had been employed. In other words, this conclusion by Mr. Robinson is an example of uncontrolled experiment and precarious deduction derived by association of two possibly unrelated factors, *viz.*, dust and the damping of the food; (*d*) Ordinary atmospheric dust will often cause fits of sneezing and coughing but it is very doubtful if this is caused by bronchial irritation; it is more likely to be due to reflex action originating in the nasal mucosa or larynx; (*e*) From a statement of Mr. Robinson regarding outbreaks of coughing in pigs throughout the country it might appear that "dust" might be generally incriminated. This is rash generalisation which might cause much misconception to practitioners and pig breeders if left unchallenged.

Two comments remain to be made. (1) The veterinarian, be he pathologist or practitioner, by training and experience is the first person who should be regarded as being able to pass any considered opinion on problems associated with animal disease. It is with trepidation that one tries to imagine the outcome of any attempt made by a veterinarian to invade the sphere of the medico in any parallel case. (2) In the realm of either medical or animal pathology the formulation of sweeping conclusions regarding the nature and genesis of any disease process by the examination of odd pieces of tissue without any detailed autopsy is nothing but a prostitution of the science and art of pathology. This is a thesis which no true pathologist would ever hesitate to defend.

I am, Sir,
Yours faithfully,
J. R. M. Innes.

Institute of Animal Pathology,
Milton Road,
Cambridge.

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## THE MANSION HOUSE MEETING

To the Editor of the Veterinary Record

Sir,—There is a marked contrast between the speech of the late Minister of Agriculture and that of Sir Merrik Burrell at the above strange meeting, as reported in your columns.

Mr. Walter Elliot spoke with considerable detail of the achievements of the veterinary profession in the eradication and control of a number of animal scourges. He also placed the credit for the successful results achieved, where it is without doubt chiefly due, namely, to the work of the general practitioner, acting under the concerted regulations and control of ministerial and local authorities.

Anyone knowing the history of the profession, and viewing its work in these connections with an unbiased mind, will I think, agree that Mr. Elliot spoke with knowledge and accuracy.

There would also appear to be little doubt that where successful results were unduly delayed, the fault lay in the lack of co-ordination of the measures taken on a national basis and of a compulsory character, rather than in the degree of efficiency of the veterinary personnel employed. The present conditions in respect of uniformity of administration would seem to be little better than chaotic, and it may be well to remember how many cooks there are to spoil the veterinary broth to-day, before indulging in deprecatory criticism of the profession. The public health problems which now face us are so serious both nationally and economically, that it would appear they cannot hope to be solved within a reasonable time unless tackled nationally, and by using the entire personnel of our small profession and fostering its scientific resources to the full.

The problems, however, must be viewed as a whole and seen "in the round," if their solution on some sides is not to bring greater evils on others. It seems to be too often forgotten that the veterinary surgeon has to serve agriculture and the public in a very varied and important field other than that of the Public Health Services of the moment, and that only the best class of graduate with years of clinical experience behind him, is capable of giving such service at its best.

If the future clinical field of the practitioner is to exclude tuberculosis, its eradication and the problem of a pure milk supply which it involves, as well as contagious abortion, mammitis, Johne's disease, and the scourges of sheep, pigs and poultry, what is there left to save him from ruin?

All of the above is foreshadowed in the Gowland Hopkins report, and, if implemented, then the extinction of the skilled clinician both scientifically and economically appears inevitable. In a large number of areas he will be superseded by the charlatans and quack medicine vendors, who are already sufficiently active.

The earliest and greatest sufferer will be the agriculturist himself, who will do well to ponder long over this aspect of the matter before accepting any excessive and one-sided specialism of our small profession, and its probable economic results. The other sufferer will be the profession itself as a whole, for such students as enter the teaching colleges with a view to taking up general practice, will neither need nor care to face a five-year curriculum, or take interest in the study of diseases which will not concern them in practice. One may well ask whether this prospect is calculated to raise the standard of the type of men entering the profession, and may ask also, whether the salaries in prospect for the vast majority of whole-time officers will continue to attract first-class men.

If a national appeal for funds to assist in raising the efficiency and national value of the profession is launched, will not the public and agriculturists need to be assured that it is its *all round value* as a national entity of service which it is sought to assist, and not one side only of such service to the detriment of another.

Sir Merrik Burrell appears to challenge the whole educational veterinary system as being unfit and inadequate to produce veterinary surgeons suited to modern needs. This is a challenge which intimately concerns the Council of the Royal College and the staffs of the teaching colleges, the former as being responsible for the curriculum, and the latter as implementing it, and can hardly be ignored by either of these bodies. It is good to see that an official enquiry is to be held on this vital matter, but far from good to note that only one veterinarian is to sit on this commission, as was the case with the Gowland Hopkins Committee.

It would appear to behove the Councils of R.C.V.S. and the N.V.M.A. to bestir themselves to ensure that history shall not repeat itself also as to the one-sided character of the evidence submitted to the Hopkins Committee, and to endeavour to secure more adequate veterinary representation on the new tribunal.*

One may be willing and anxious to believe that Sir Merrik Burrell is a "great admirer"

*The N.V.M.A. is making every effort to increase veterinary representation on this committee.—*Editor.*

of the profession, but he surely has a queer way of showing his admiration.

After all, as the late Matthew Arnold remarked in another connection, "if a friend asks you to write an epitaph on his father, one does not usually seize the opportunity to say that he was blind of one eye, and had an unpleasant habit of not paying his tradesmen's bills." This appears to be Sir Merrik's method, and I suggest it is as offensive as his statements of alleged fact are biased and misleading.

Yours faithfully,
E. P. Edwards.

Mold.
*November 28th*, 1936.

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## HUMAN CONTACT AFFECTIONS FROM CATTLE

To the Editor of the Veterinary Record

Sir,—I am at present investigating a phenomenon well known to veterinarians and of great interest to the medical profession, namely, the occurrence of skin rashes in veterinarians from contact with cattle suffering from contagious abortion.

I shall be very grateful if you will give me the hospitality of your columns to ask veterinarians who have experience of such rashes to write to me at the Ministry of Health and give me any information they may possess.

I should be very grateful also for any information casting light upon the apparently low incidence of clinical undulant fever in veterinarians, many of whom must frequently be exposed to infection through the skin from the handling of such animals. I may remark that I have only four records of the clinical disease in veterinarians among the 350 detailed records of cases in my possession.

I am,
Yours faithfully,
Weldon Dalrymple-Champneys.

Ministry of Health,
Whitehall, S.W.1.
*November 28th*, 1936.

## VICTORIA VETERINARY BENEVOLENT FUND

### Christmas Appeal

To the Editor of the Veterinary Record

Sir,—Christmas is coming, and we would like to be able to send a few Christmas gifts to help to cheer the lives of some of the widows and orphans who are being assisted by this Fund. There are many cases where our small grant of 10s. or £1 a week does little more than keep the recipient out of the workhouse, and it is a wonder how some of them manage to live at all on the small amount of income they have. We have now one case of a family of eleven children, the eldest of whom is 15 and the youngest three months, and the father has been ill for two years, and is still too ill to carry on his practice.

Any sums, however small, which can be spared for the purpose of our Christmas Gift Fund will be welcome, and every care will be taken in disposing of the gifts, so that they may be wisely spent. Remittances may be made payable to "Christmas Gift Fund" and sent to me.

Yours faithfully,
Fred Bullock,
*Secretary.*

10, Red Lion Square,
London, W.C.1.
*November 30th*, 1936.

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*The Editor acknowledges, with thanks, the receipt of the following:—*

Communications from Dr. J. R. M. Innes (Cambridge), Professor W. Kearney (Dublin), Captain W. L. Little (Reading), Captain John Smith (Kenley), Colonel G. K. Walker (Abingdon) and Mr. E. G. White (London).

Reports of meetings from the Hon. Secretaries of the following Divisions of the N.V.M.A.: Derbyshire, Mid-West, North of Ireland.

# Diseases of Animals Acts

## SUMMARY OF RETURNS

| Period. | Anthrax. | | Foot-and-Mouth Disease. | | Parasitic§ Mange. | | Sheep Scab. | Swine Fever. | |
|---|---|---|---|---|---|---|---|---|---|
| | Outbreaks confirmed. | Animals attacked. | Outbreaks confirmed. | Animals slaughtered as diseased or exposed to infection. | Outbreaks reported by the Local Authorities. | Animals attacked. | Outbreaks confirmed. | Outbreaks confirmed. | Swine slaughtered. |
| | No. | No. | No. | No. | No. | No. | No. | No. | No. |
| Period 1st to 15th Nov., 1936 | 14 | 17 | 2 | 143 | — | — | 10 | 52 | 15 |
| Corresponding period in | | | | | | | | | |
| 1935 ... ... ... | 22 | 28 | — | — | 1 | 2 | 50 | 77 | 55 |
| 1934 ... ... ... | 15 | 17 | 19 | 2,488 | 2 | 4 | 50 | 105 | 37 |
| 1933 ... ... ... | 18 | 30 | — | — | 4 | 12 | 65 | 64 | 59 |
| Total 1st January to 15th November, 1936 ... ... | 388 | 457 | 23 | 2,675 | 99 | 241 | 184 | 1,683 | 1,165 |
| Corresponding period in | | | | | | | | | |
| 1935 ... ... ... | 320 | 373 | 48 | 11,624 | 91 | 210 | 339 | 1,776 | 1,063 |
| 1934 ... ... ... | 333 | 377 | 52 | 6,248 | 106 | 176 | 542 | 1,528 | 874 |
| 1933 ... ... ... | 257 | 303 | 87 | 7,805 | 122 | 209 | 364 | 1,241 | 801 |

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.